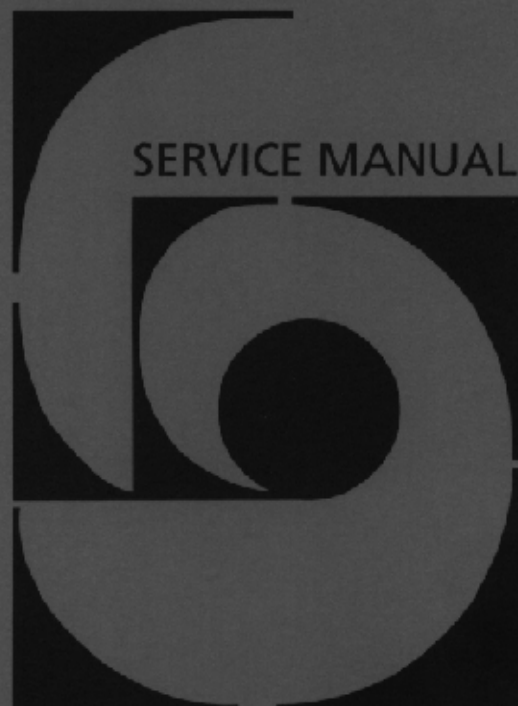
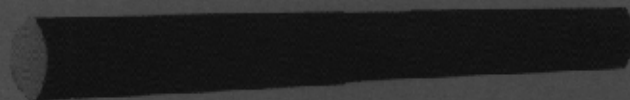


Bang & Olufsen

Beolab LCS 9000

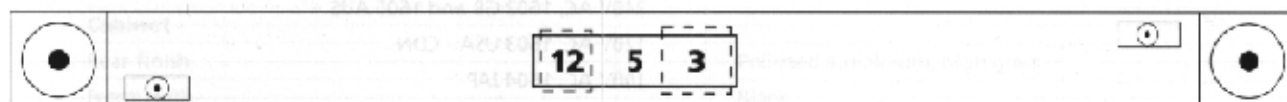
Type 1601, 1602, 1603, 1604, 1605



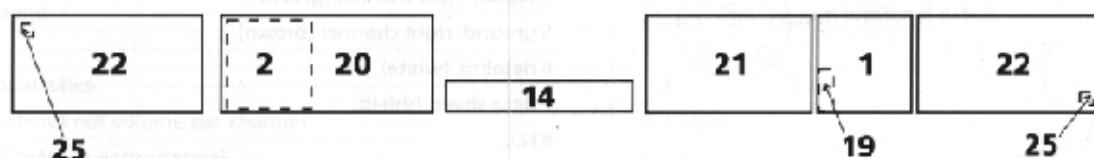
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Seen from the front



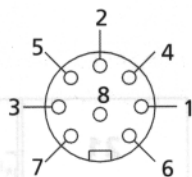
Seen from the back

Power amplifiers

| | |
|---------------------------------|-----------------------------|
| Rated power woofer | 35W, 8Ω |
| Rated power tweeter | 35W, 8Ω |
| Amplifier signal-to-noise ratio | > 80 dBA, 1W/8Ω |
| Signal-to-noise ratio | > 74 dBA, full volume |
| Frequency range | 20 - 20,000 Hz +0 -1 dB |
| Harmonic distortion | < 0.1% |
| Total harmonic distortion | < 0.3% IHF |
| Cross talk | 50 dB |
| Active crossover network | 24 dB/octave Linkwitz/Riley |
| Low frequency equalization | +12 dB/60 - 250 Hz, ABL |
| High pass filter | 30 dB/octave, 60 Hz |

Connections**Mains**

Cable included, 3 meters
 230V AC, 1601 EU
 240V AC, 1602 GB and 1605 AUS
 120V AC, 1603 USA - CDN
 100V AC, 1604 JAP

Master Control Link

8-pin DIN 45326 socket
 1 signal, left channel (yellow)
 2 N.C. (pink)
 3 ground, left channel (grey)
 4 signal, right channel (green)
 5 ground, right channel (brown)
 6 datalink (white)
 7 data shield (shield)
 8 N.C.

Dimensions

| | |
|--------------------------------------|--|
| Total dimensions W x H x D (on wall) | 111 x 9.5 x 11 cm |
| Power consumption, operation | 95 watts (230V) |
| Power consumption, stand-by | 1.1 watt, 'Dot' in display 3 watt, 'Watch' in display |
| Weight | 10 kg, without stand |

Optional accessories

| | |
|------------------------|----------------------------|
| Beolink 1000 | Type 1501, 1502 Italy |
| Stand | Type 1606 |
| Wall plate | 3901162 |
| Cable cover | 2560276 (10 pieces x 2.5m) |
| MCL cable | Available from dealer |
| Converter junction box | 7219071 |

SPECIFICATION GUIDELINES FOR SERVICE USE

Beolab LCS 9000

Type 1601 (EU), 1602 (GB),
1603 (USA-CDN), 1604 (JAP),
1605 (AUS)

Concept

X-tra room product

Active stereo loudspeaker with control circuitry, stand-by relay
and IR receiver

Operation

Local operation

Two sensi-touch fields with restricted operation (Mute/on/off/
listen-in, timer on/off)

Remote operation

Beolink 1000, one-way (optional extra)

Status feedback

Red 8 char. LED dot matrix display, (program source, program
or track number, record, clock)

Red LED 1.8mm (Timer indication)

Independent sound control

Volume, balance, bass, treble, loudness

Compatability

Masters with MCL (BM5500 or later)

Cabinet

Rear finish

Polished aluminium, high gloss

Front cloth

Black

Center front

Black aluminium/plastic

Wall bracket

Grey plastic

Placement

Wall

Wall bracket included

Stand

Polished aluminium (optional extra)

Acoustics

Cabinet net volume per channel

0.8 litres

Woofer in each channel

9 cm - 3½"

Tweeter in each channel

1.8 cm - 3/4"

Crossover frequency

3000 Hz

Bass reflex principle

Port

Electronics

Overload protection

Yes

Volumecontrol

+12 dB in relation to central room

Bass/treble equalization

±12 dB, 100Hz/20kHz

System data

Principle

Active, Bass reflex, 2-way, bi-amp, stereo

Frequency response

70 - 22.000 Hz +4 -8 dB, half field

Sound Pressure Level

95 dB weighted noise (IEC 268-5), stereo, half room, 3m

Harmonic distortion 250 -1,000Hz

<10% 94 dB SPL, 1m

Harmonic distortion 1,000 - 5,000Hz

<3% 94 dB SPL, 1m

Input impedance, MCL

> 47kΩ

Input sensitivity

2.85V one channel, 1m half field

Minimum distance to TV

25cm

Power

Rated p

Rated p

Amplifie

Signal-to

Frequen

Harmon

Total ha

Cross tal

Active c

Low fre

High pa

Connect

Mains

Master

Dimens

Total di

Power c

Power c

Weight

Option

Beolink

Stand

Wall pla

Cable co

MCL cab

Convert

Subject

BRIEF OPERATION GUIDE

The Local Control System 9000 gives you the possibility to play any source you like in a central Bang & Olufsen system and listen to it in the room with the LCS 9000. Furthermore it is possible to control the daily playback functions in the central system via the LCS 9000 - using the Beolink 1000 terminal. The LCS 9000 and the central system must be interconnected by a Beolink installation.

CLOSE-UP OPERATION**Timer Play control**

Cuts-in the speakers together with the Timer Play function in the central audio system.

- Touch the Timer key and the display shows the current setting.
- Touch the Timer key again to change the setting.

| | | |
|---------|-----------------------------------|--------|
| TIMER | NO TIMER BANG & OLUFSEN | MUTE • |
| TIMER • | TIMER BANG & OLUFSEN | MUTE • |

Sound control

Listen-in on the source currently playing in the central system, or switch on and listen to the audio source that was last playing.

- Touch MUTE • to listen-in or switch on.
- Touch MUTE • briefly to mute (switch off).
- Touch and hold the MUTE • key to switch off both the LCS 9000 and the central system.

| | | |
|---------|-----------------------------------|--------|
| TIMER • | RADIO 16 BANG & OLUFSEN | MUTE • |
| TIMER • | MUTED BANG & OLUFSEN | MUTE • |
| TIMER • | 22:35 BANG & OLUFSEN | MUTE • |

Note:

Timer Play and clock functions must be supported by the central audio system.

Display setting

There are three options available.

- Keep a finger on Timer key.
- Touch the MUTE key briefly.
- Touch the MUTE key again.
- Touch the MUTE key again.

| | | |
|---------|-----------------------------------|--------|
| TIMER • | CLOCK 2 BANG & OLUFSEN | MUTE • |
| TIMER • | NO CLOCK BANG & OLUFSEN | MUTE • |
| TIMER • | CLOCK 1 BANG & OLUFSEN | MUTE • |

CLOCK 2

In stand-by the display will show the time and the stand-by light. The time indication remains on when the LCS 9000 is playing, but the display gives a brief status whenever you operate the LCS 9000. This is the factory setup.

NO CLOCK

In stand-by the display will show a : and the stand-by light. The display will give a permanent status when the LCS 9000 is playing. A setup for central systems without clock functions.

CLOCK 1

In stand-by the display will show the time and the stand-by light. When the LCS 9000 is playing, the display will give a permanent status.

EXPLANATION OF DIAGRAM

Type numbers of transistors and ICs are indicated on the diagrams. If the position is followed by an asterisk the spare part number must always be used because the component in question has been specially selected, e.g. TR102*.

Component print and coordinate system

The largest PCBs have component prints and a coordinate system on both the print and the component side.

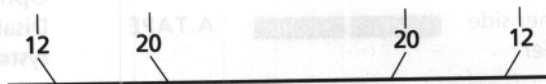
On the diagrams every component has a coordinate number. This indicates in which coordinate on the PCB the component is situated. The coordinate numbers are written in smaller print types than the position numbers.

Control Circuit

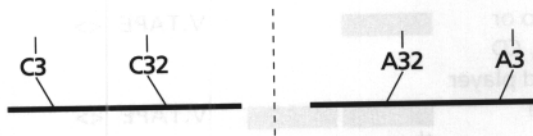
In certain control circuits the active mode is indicated by a function term or by an abbreviation. This may be e.g. ST.BY.= low in the stand-by mode or ST.BY.= high in the stand-by mode.

Wiring Connections

The wiring connections on the diagrams are assembled in 'bundles'. The individual wires are provided with one of the following codes:

INTERNAL CONNECTION ON ONE DIAGRAM PAGE

Internal connections on a diagram page are indicated by a number. The bend of the wire indicates in which direction the other end of the wire is found.

CONNECTION TO ANOTHER DIAGRAM PAGE

A connection to another diagram page is indicated by a number as well as by a letter of the diagram to which the connection leads.

Supply Voltages

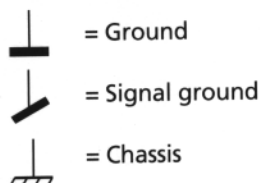
All supply voltages in the diagrams are indicated by an arrow and a voltage indication.

Example:

"7 CON.". This means that the supply voltage in question goes to 7 different places on the diagram page in question (7 CON.= 7 connections).

Ground Symbols

Three different ground symbols are used in the set.



SYMBOL OF SAFETY COMPONENTS



When replacing components with this symbol, components with identical part numbers must be used. The new component must be mounted in the same way as the one replaced.

MEASURING CONDITIONS

All DC voltages have been measured in relation to ground with a voltmeter with an input impedance of 10 Mohms.

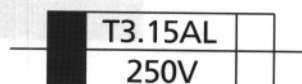
The DC voltages are stated in volts (V), e.g. 0.7V.

All oscillograms and AC voltages have been measured in relation to ground with an oscilloscope or a voltmeter with an input resistance of 1Mohm.

AC voltages are stated in millivolts (mV), e.g. 660mV.

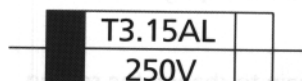
Explanation of the fuse symbols used in the set

Replace with the same type 3.15 ampere 250 volts slow acting fuse.



Explanation des symboles de fusible utilisés dans l'appareil

Remplacer par un fusible retardé de même type et de 3.15 ampères 250 volts.



REMOTE OPERATION

Switch on any source from the central Bang & Olufsen system (audio and video), and control the playback functions.

LCS 9000 display:

| | |
|---|---------------------|
| Switch on the radio | RADIO |
| Start the CD player | CD |
| Start the record player | PHONO |
| Start the tape recorder | A.TAPE |
| Switch on TV sound | TV |
| Switch on satellite TV sound | SAT |
| Switch on video tape recorder | V.TAPE |
| Switch on a secondary video tape recorder | SHIFT V.TAPE |
| Switch on a secondary CD player | SHIFT CD |
| Switch on a CDV player | SHIFT SAT |
| Switch on a secondary tape recorder | SHIFT A.TAPE |
| To play the other side on tape recorder | SHIFT SOUND |

RADIO 3

CD 1

PHONO

A.TAPE 1

TV 1

SAT 12

V.TAPE 1

V.TP2

CD2

CDV

A.TP2

A.TAPE

Options

The LCS 9000 can be preprogrammed for three different setups (options).

Option 2

To be used for a setup with the central system in one room and the local system in another (factory setting).

Option 4

To be used if the local system is installed in the same room as the central system.

To start playing a source, press

| |
|------------------------------|
| LINK |
| then |
| RADIO CD A.TAPE PHONO |
| or |
| LINK AV |
| then |
| TV SAT V.TAPE |

Option 0

Disables the remote control operation of the local system.

If both the central and local system is in stand-by mode:

- Press **LINK**, the option number, and then **STORE**.

Step through programs /tracks or raises/lowers the level

Key in exact program/ track no.

Pause the audio or video tape rec., CD player or record player

Stop the source

Rewind/searches backwards/balance left

Fast forward/searches forwards/balance right

Resume playing

or

Raises/lowers the volume

Mute or listen-in/ switch on

Volume, balance, bass, treble, loudness

Reset sound level

Store sound level

Press briefly to switch off LCS 9000

Keep pressing for 2 seconds to switch off the central system too

▲ ▼

1 9

STOP

STOP STOP

<<

>>

PLAY

^ v

MUTE

SOUND

SHIFT MUTE

SOUND STORE STORE

•

• >2 sec.

RADIO 19

V.TAPE <>

V.TAPE <>

V.TAPE <<

V.TAPE >>

V.TAPE 1

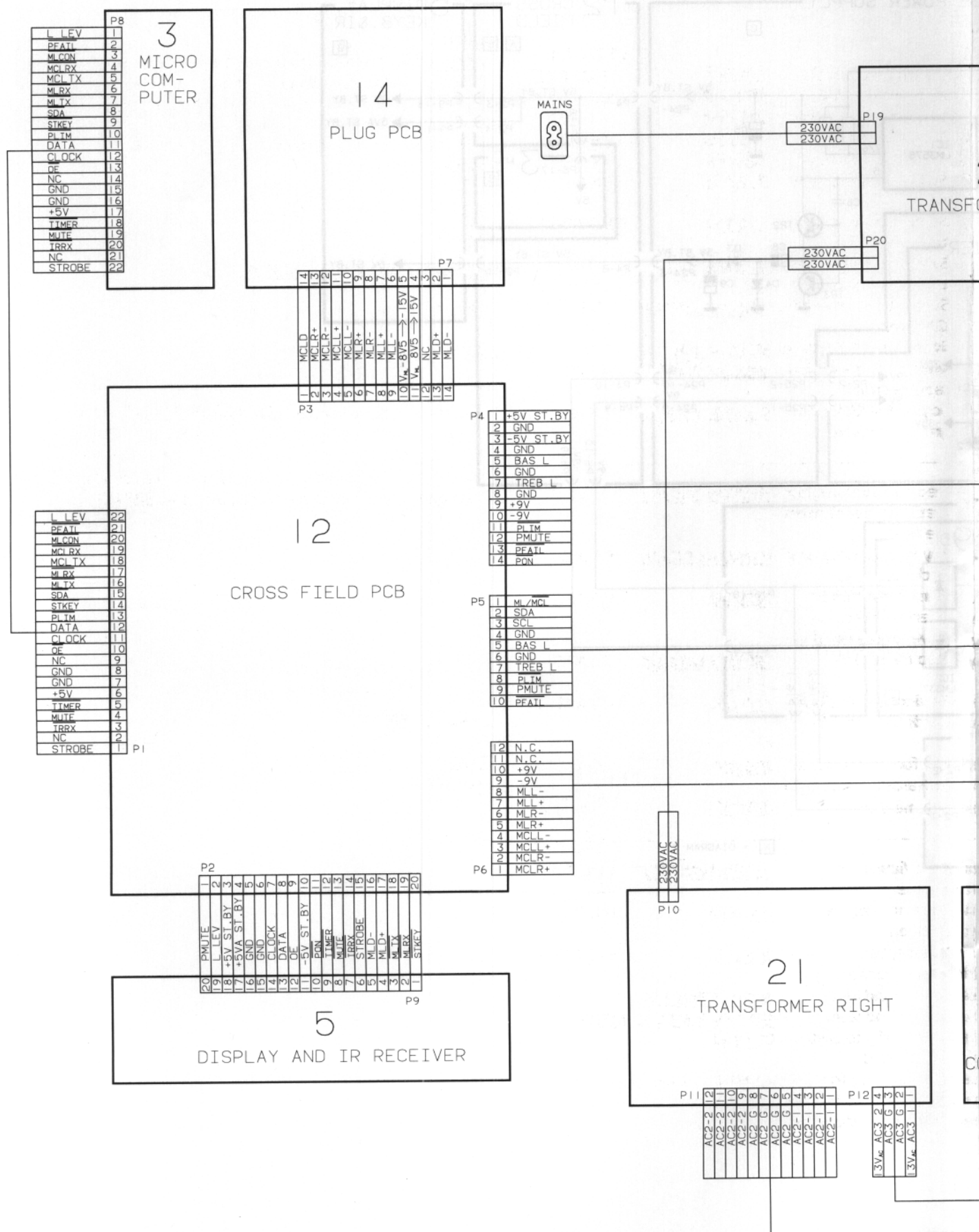
VOL 36

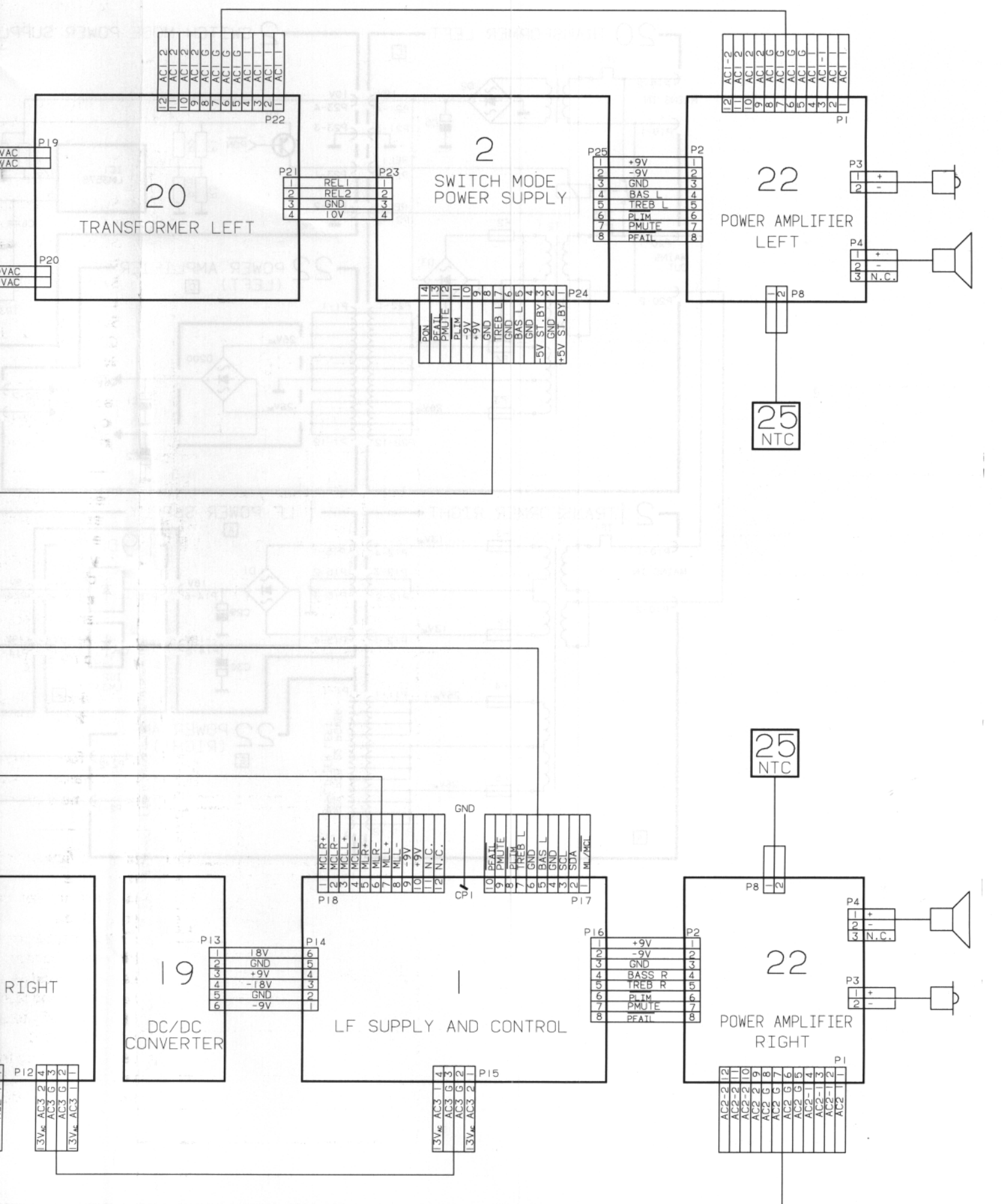
MUTED

BALANCE

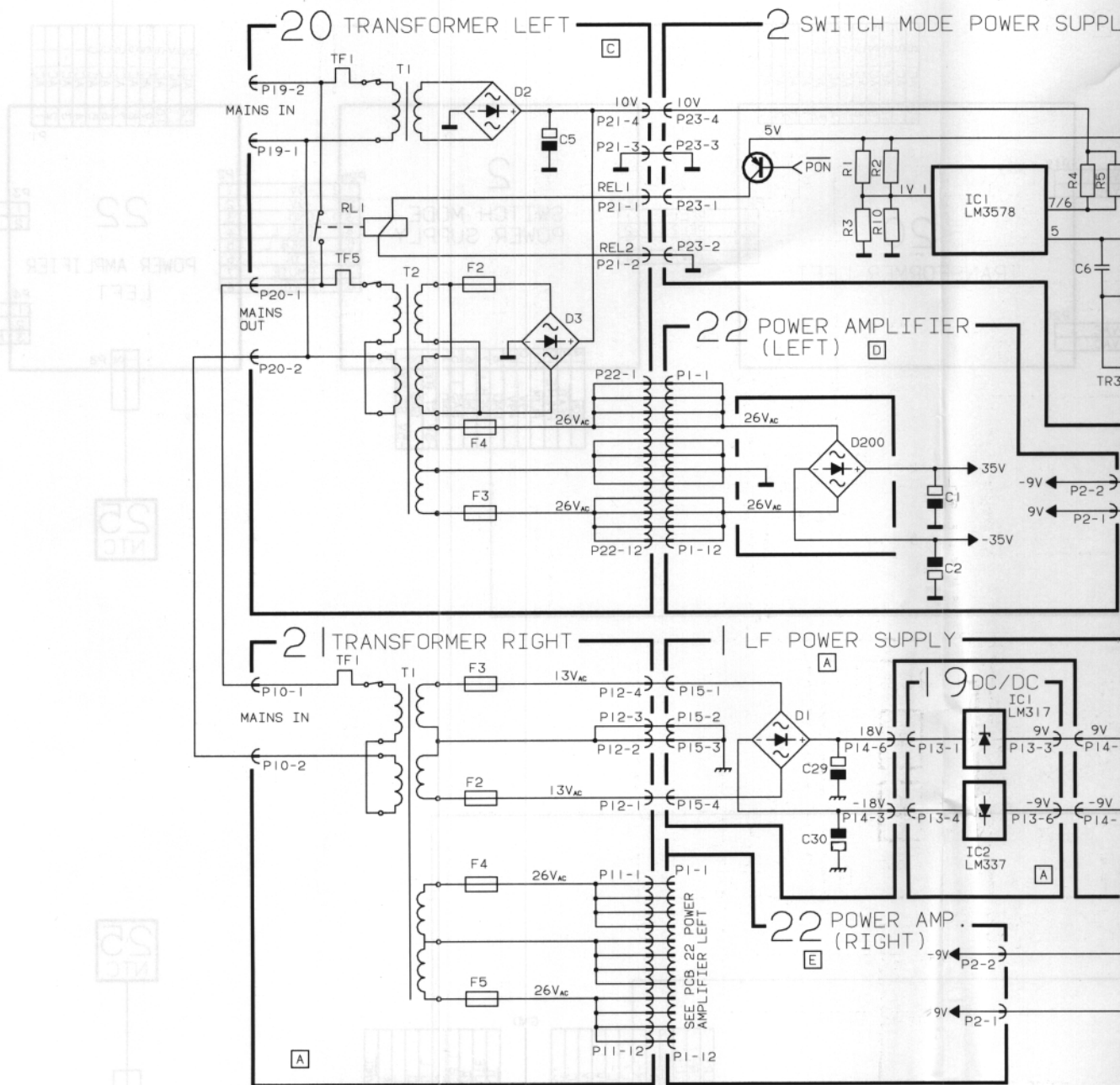
VOL 30

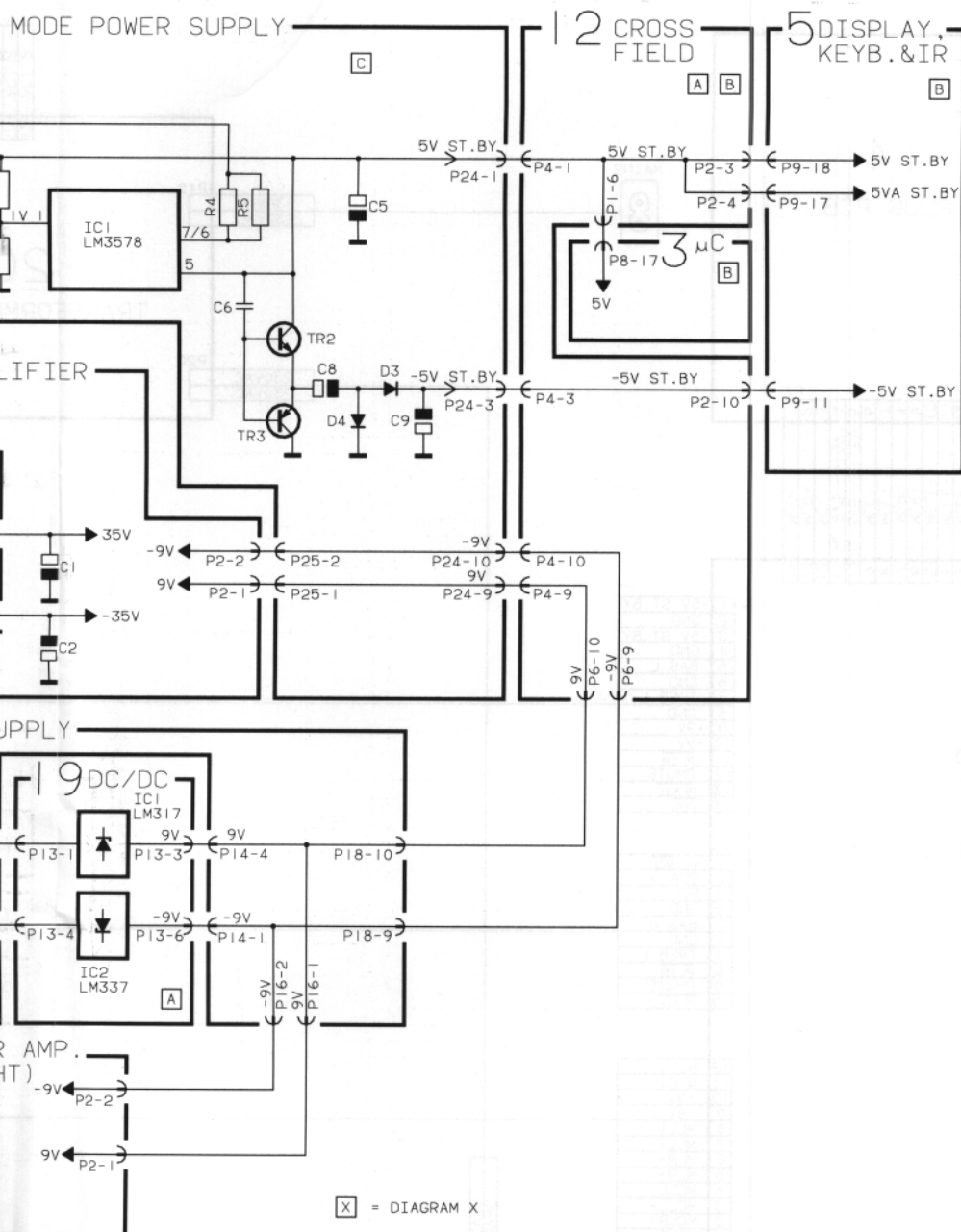
WIRING DIAGRAM



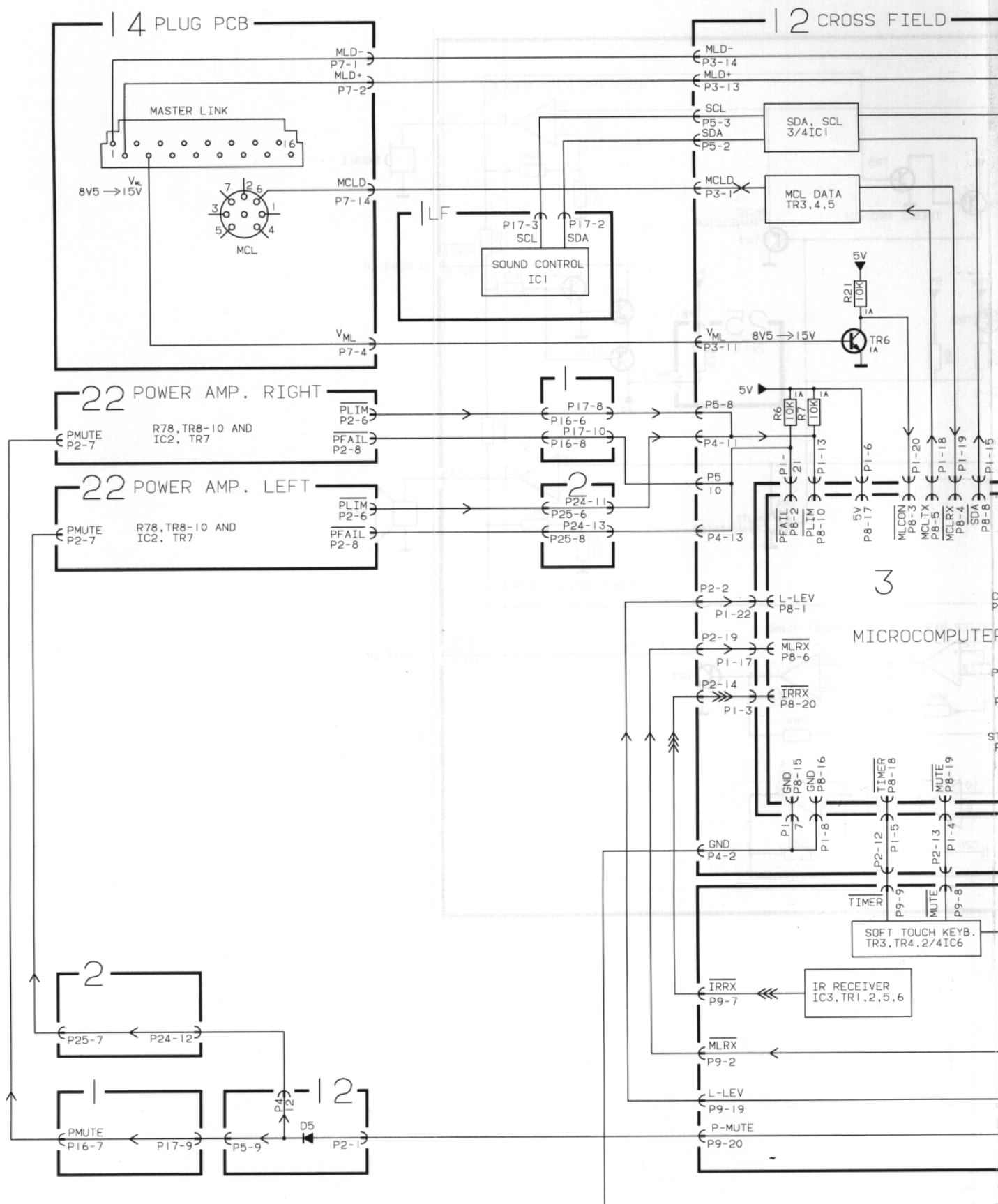


BLOCK DIAGRAM FOR POWER SUPPLY

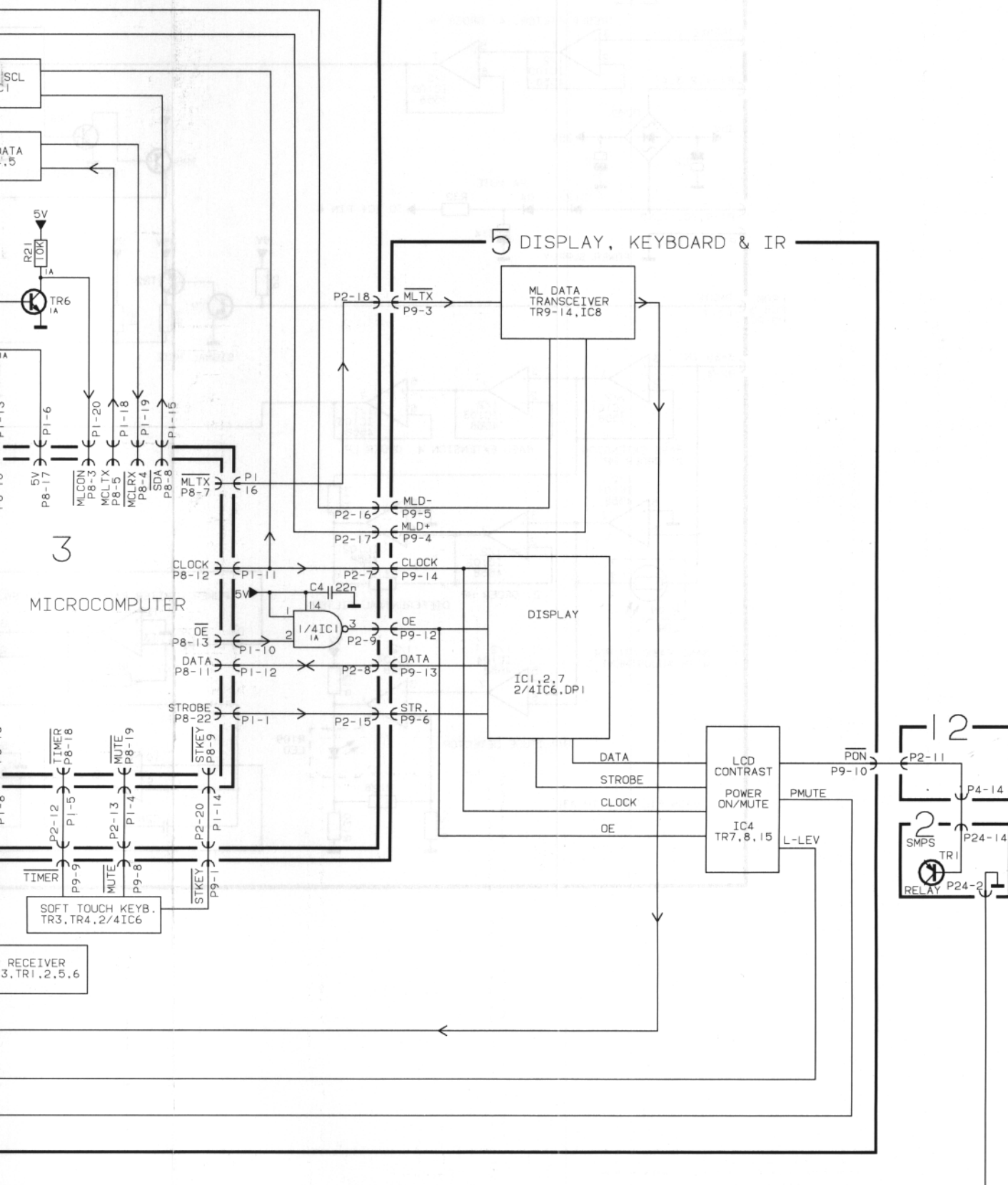




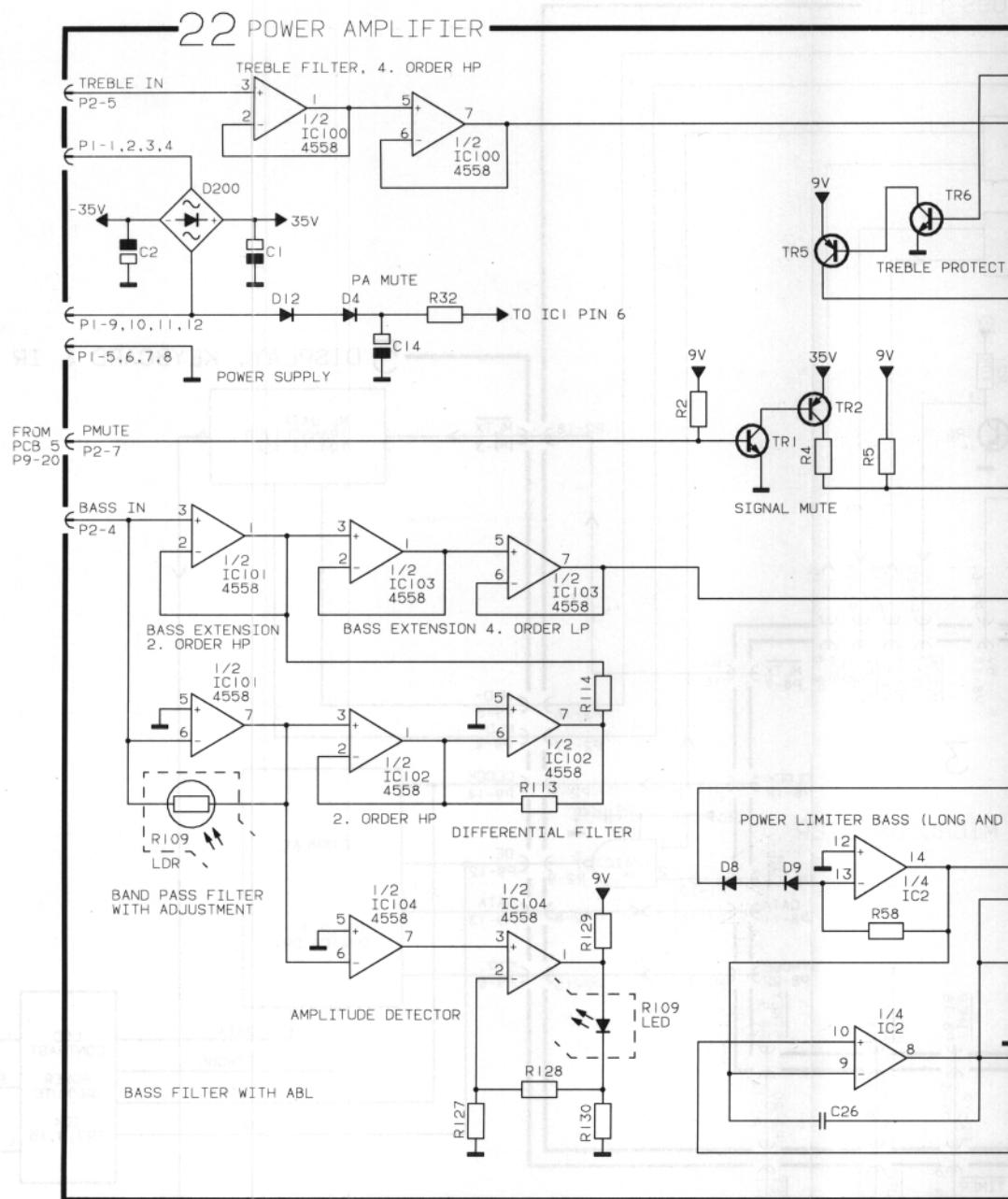
BLOCK DIAGRAM FOR SYSTEM CONTROL

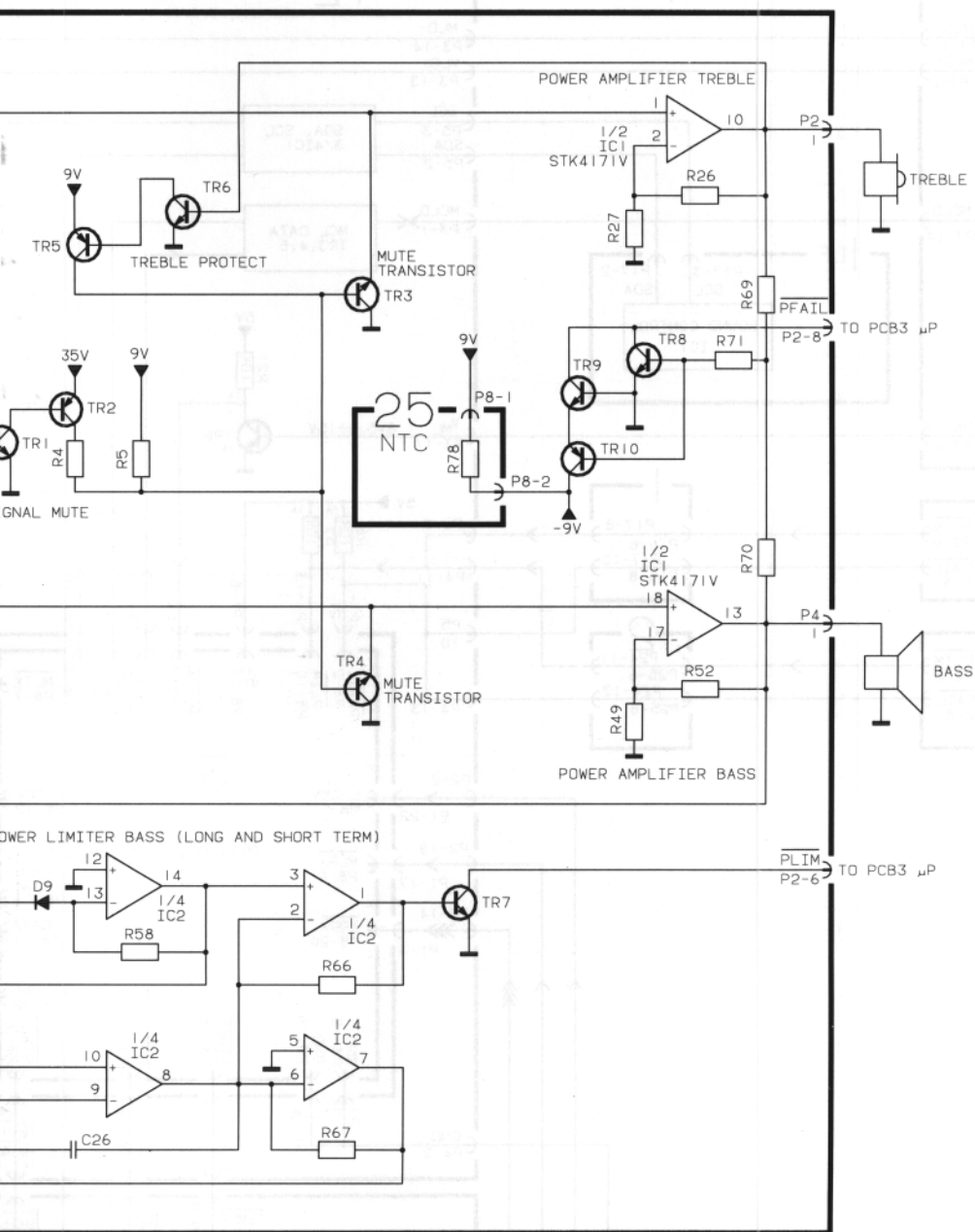


CROSS FIELD

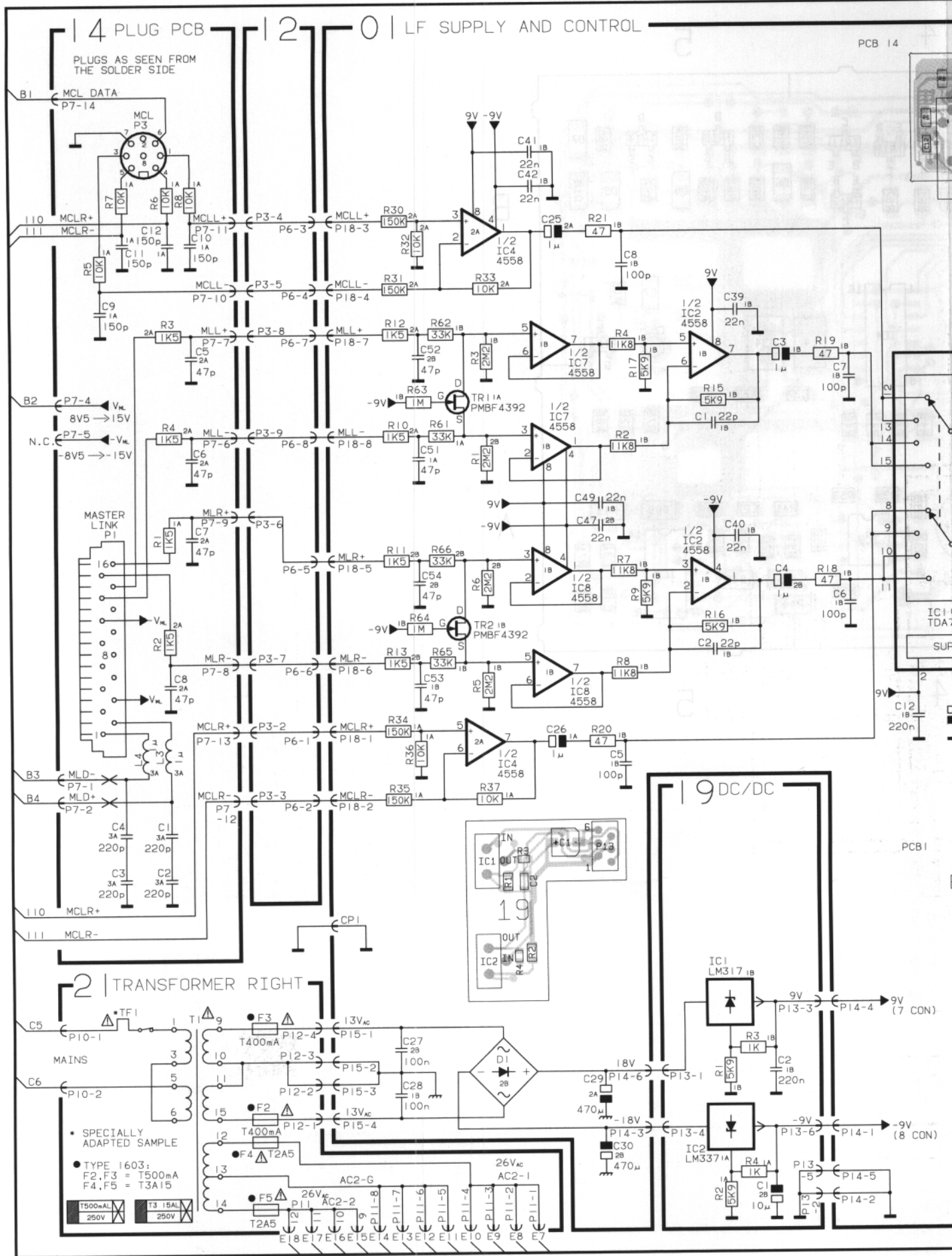


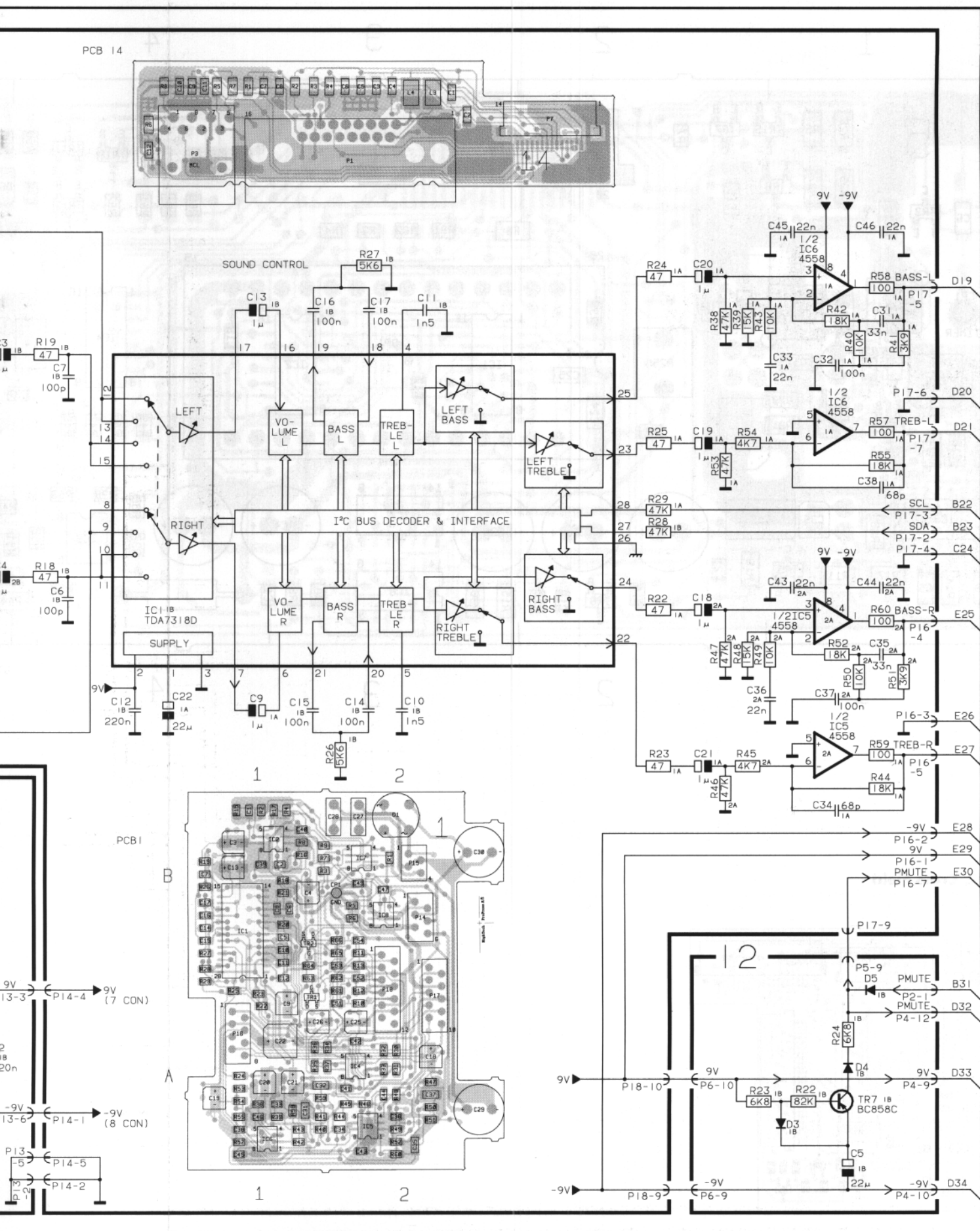
BLOCK DIAGRAM FOR POWER AMPLIFIER



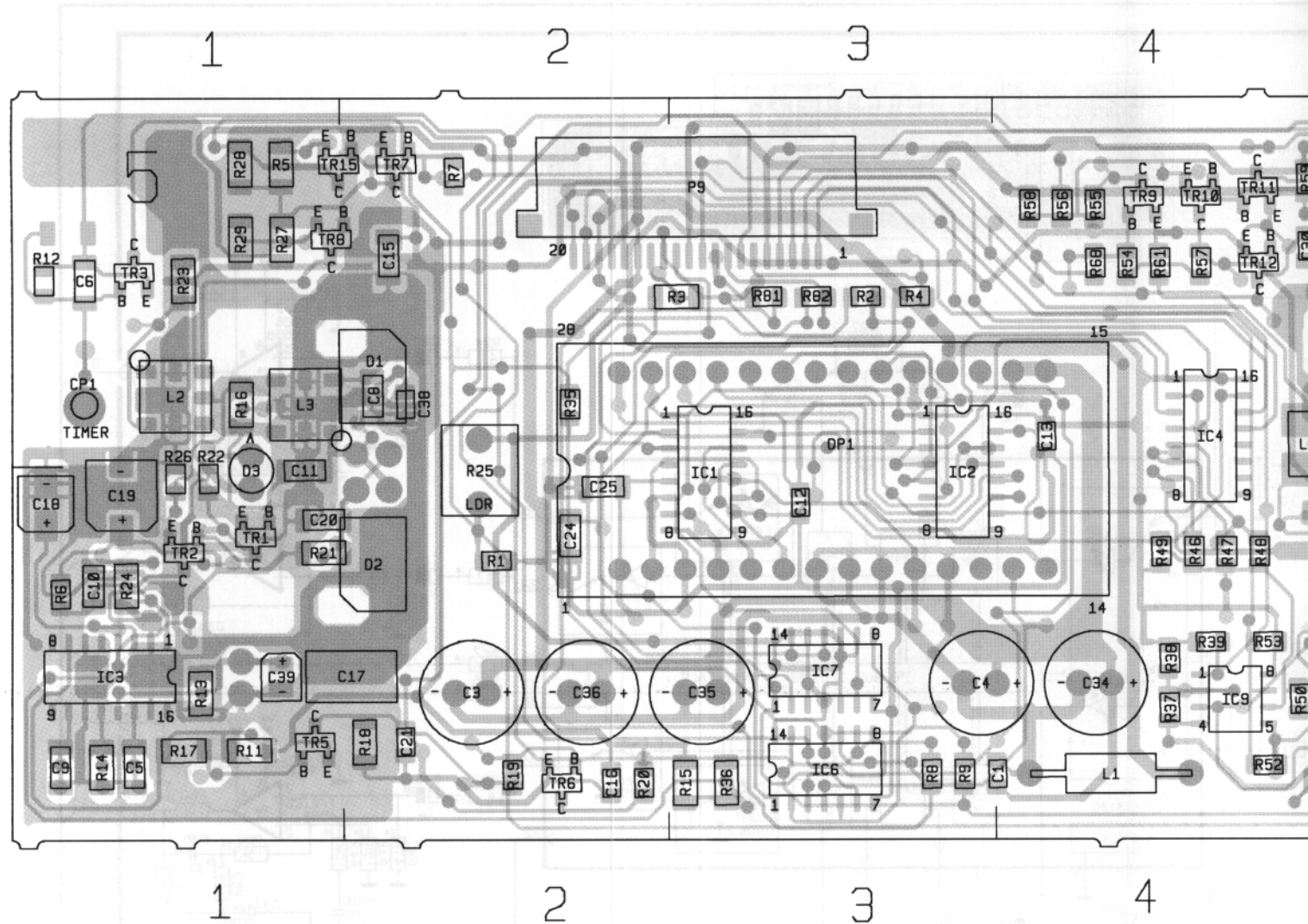


5 | 4 PLUG PCB 75 | 2750 | LF SUPPLY AND CONTROL

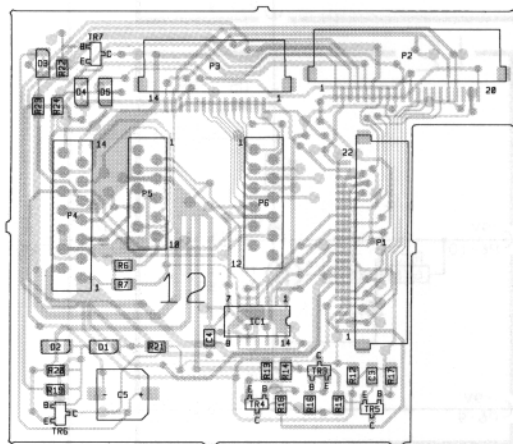




PCB 5, Display, Keyboard and IR Receiver



PCB 12, Cross Field



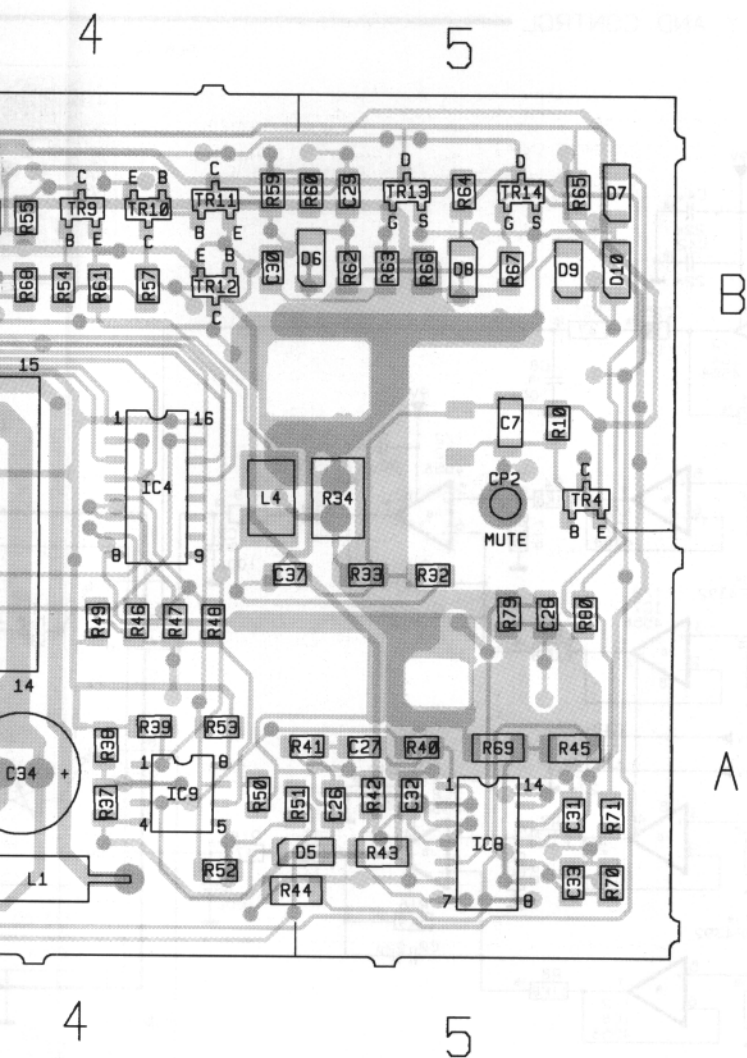
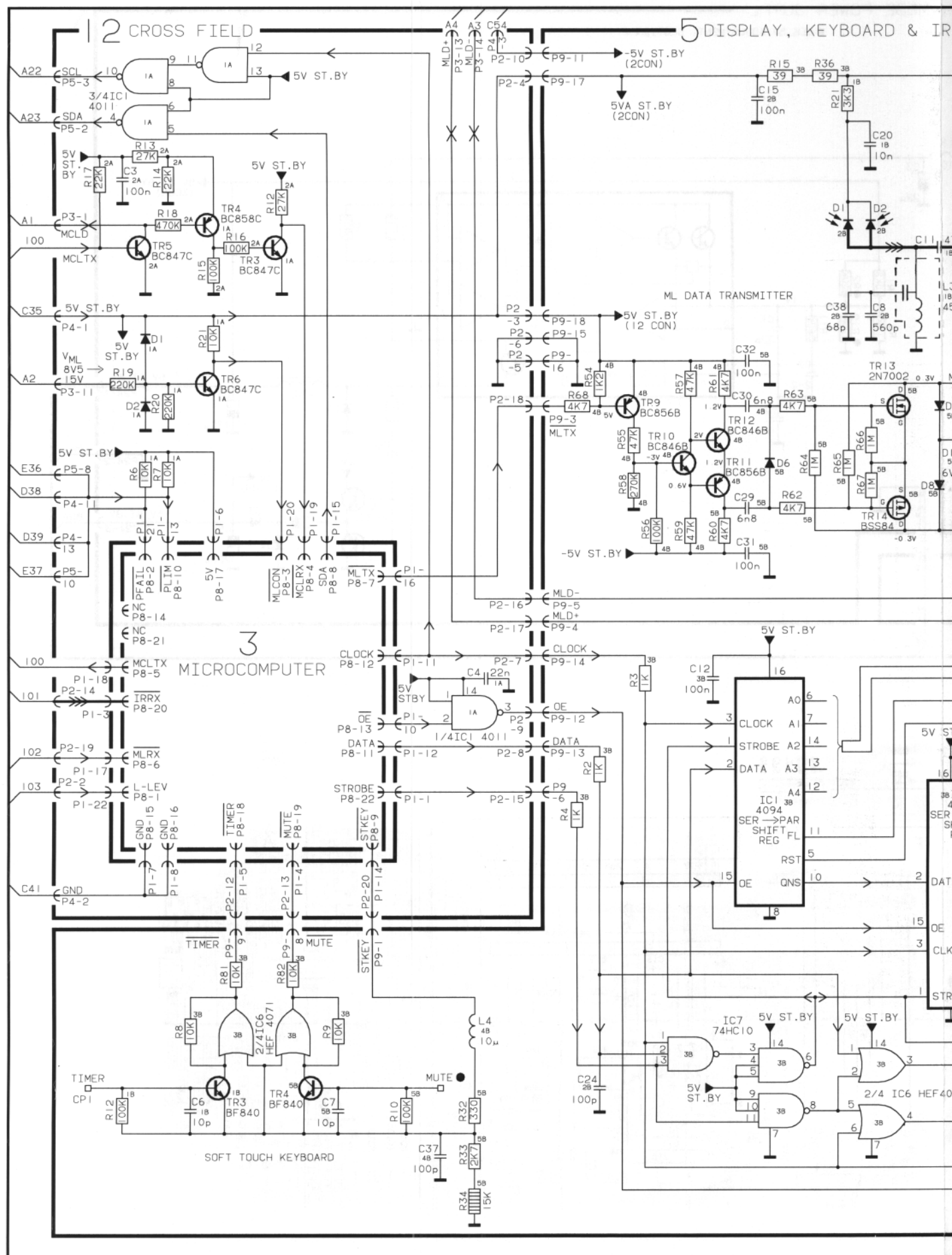
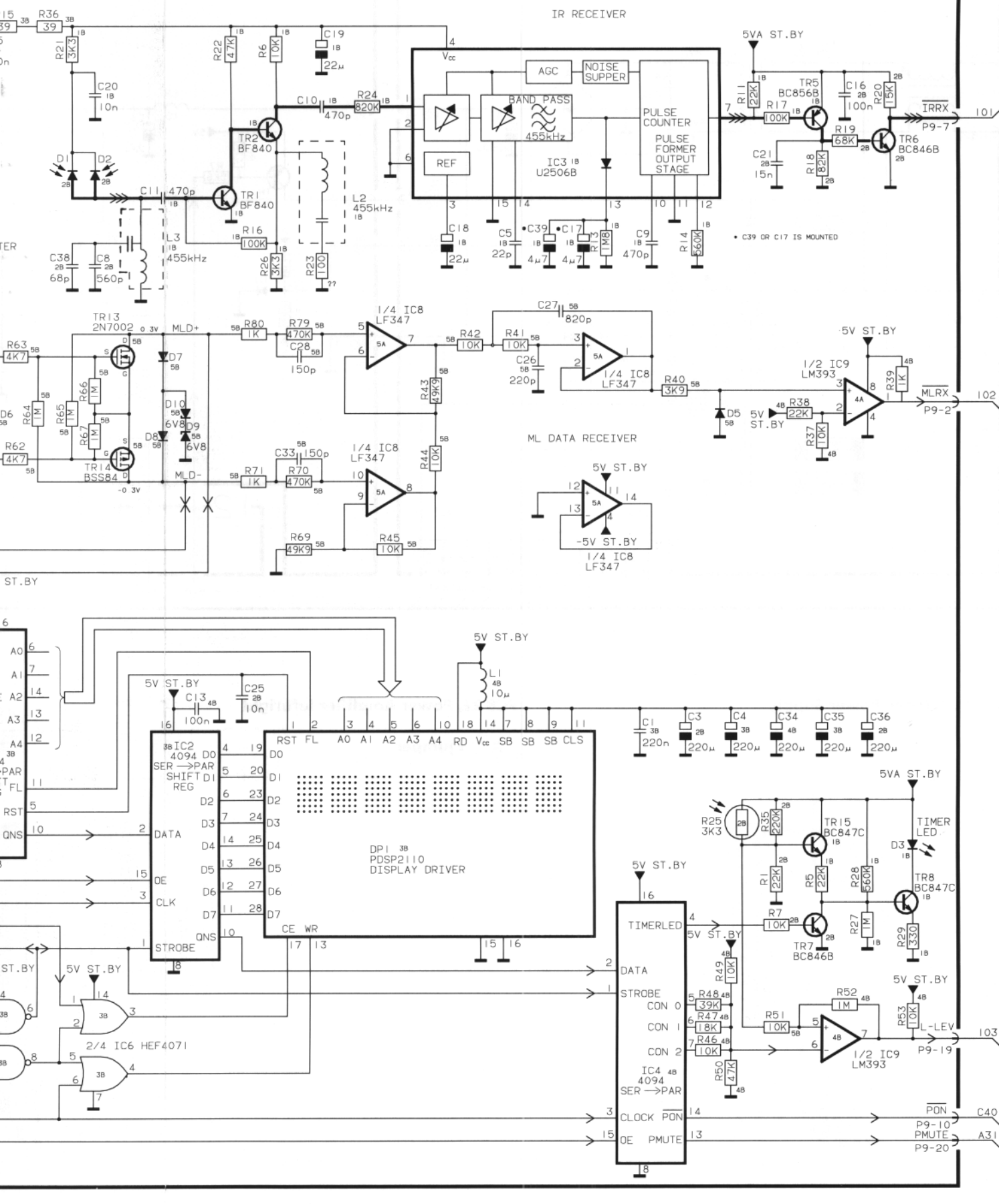


DIAGRAM B MICROCOMPUTER, DISPLAY/ KEYBOARD & IR RECEIVER AND CROSS FIELD



Y. KEYBOARD & IR RECEIVER



ITCH MODE POWER SUPPLY

● SEE 5V ADJUSTMENT, SECTION 5

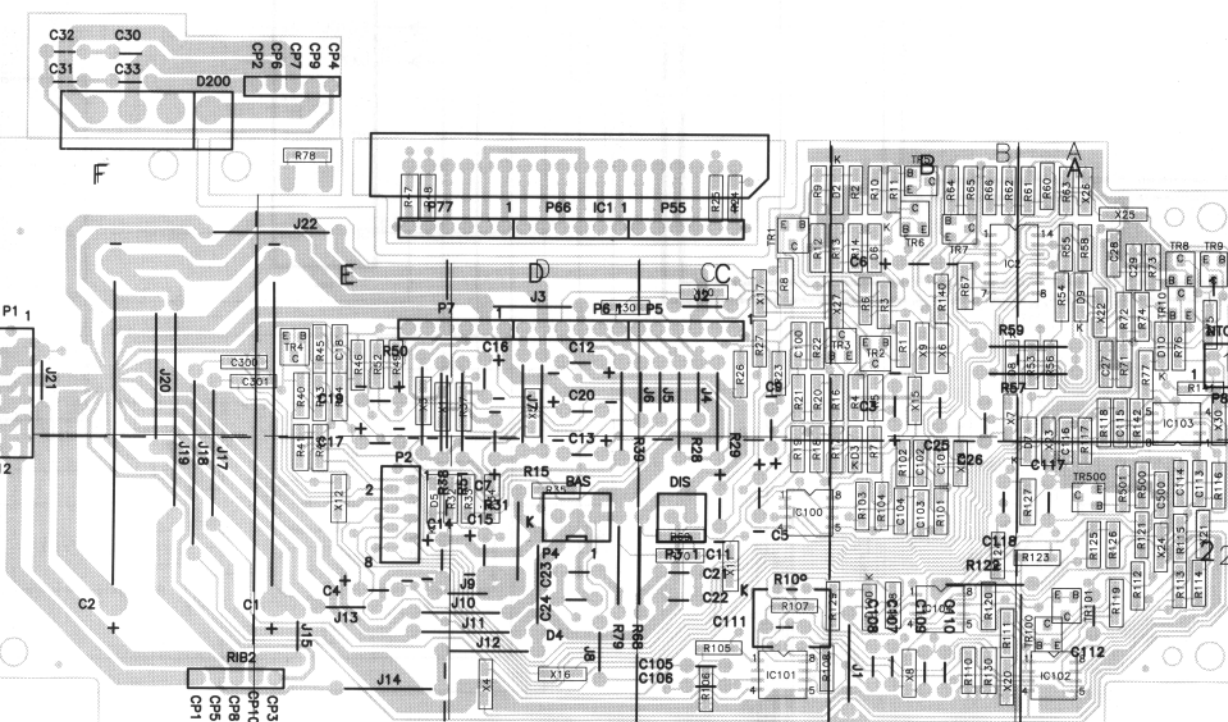
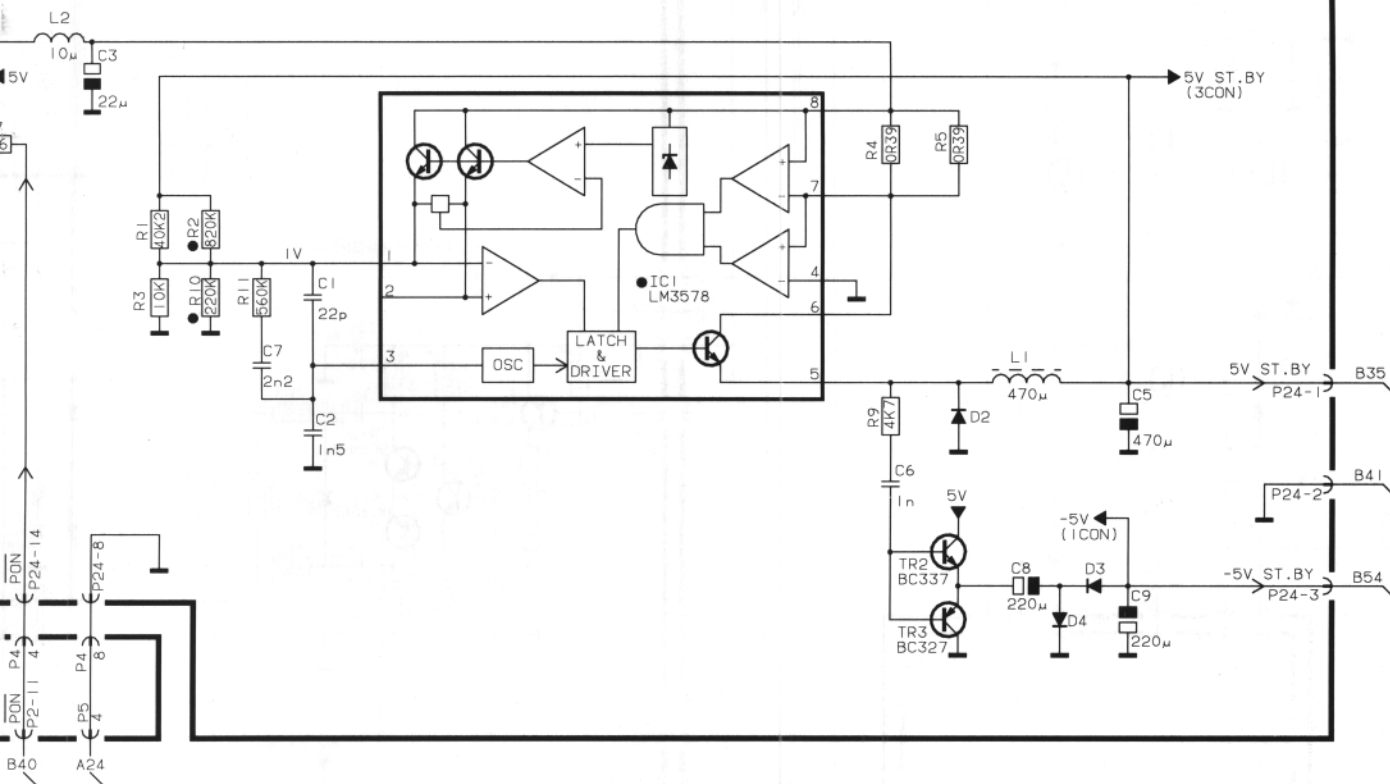
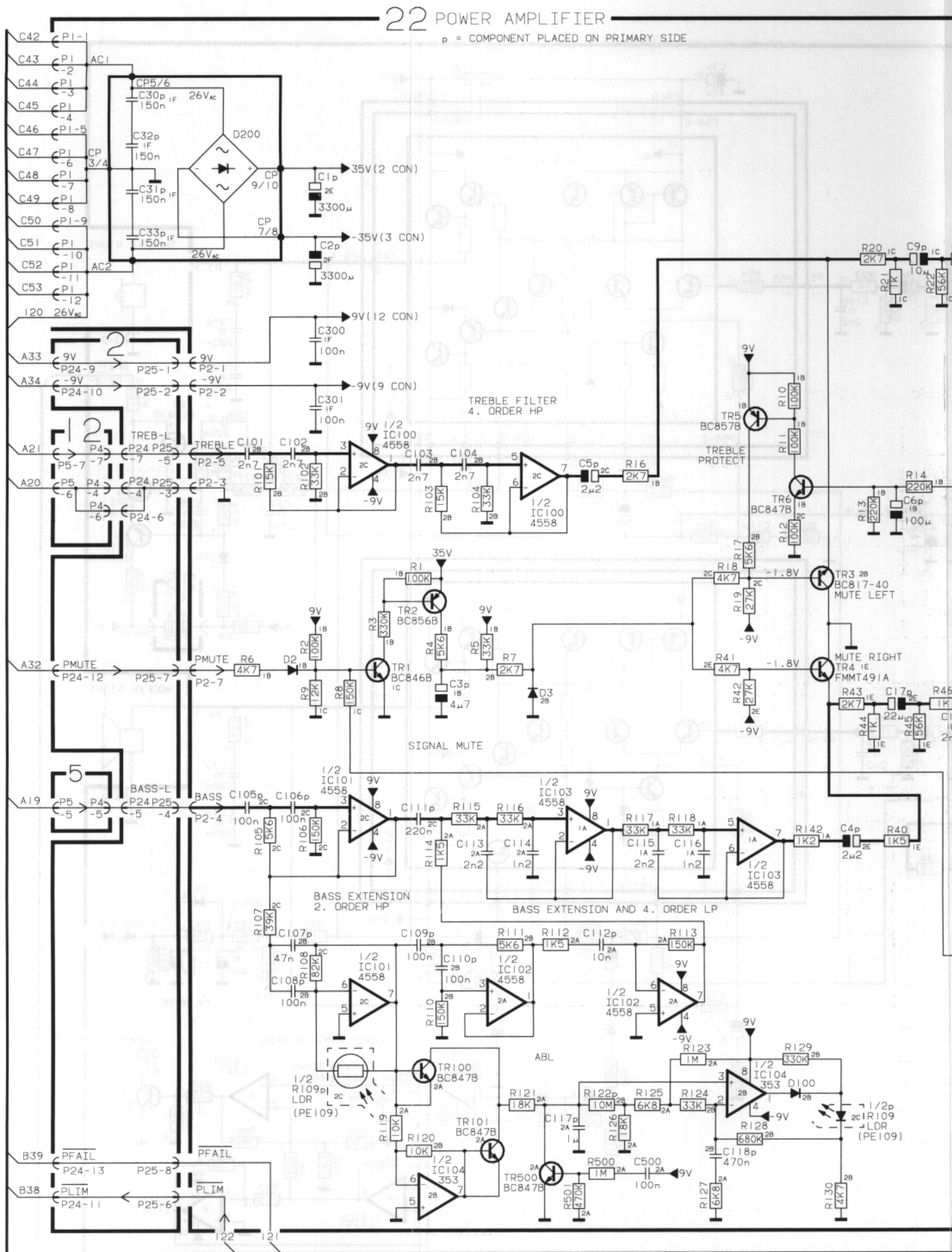


DIAGRAM D POWER AMPLIFIER LEFT



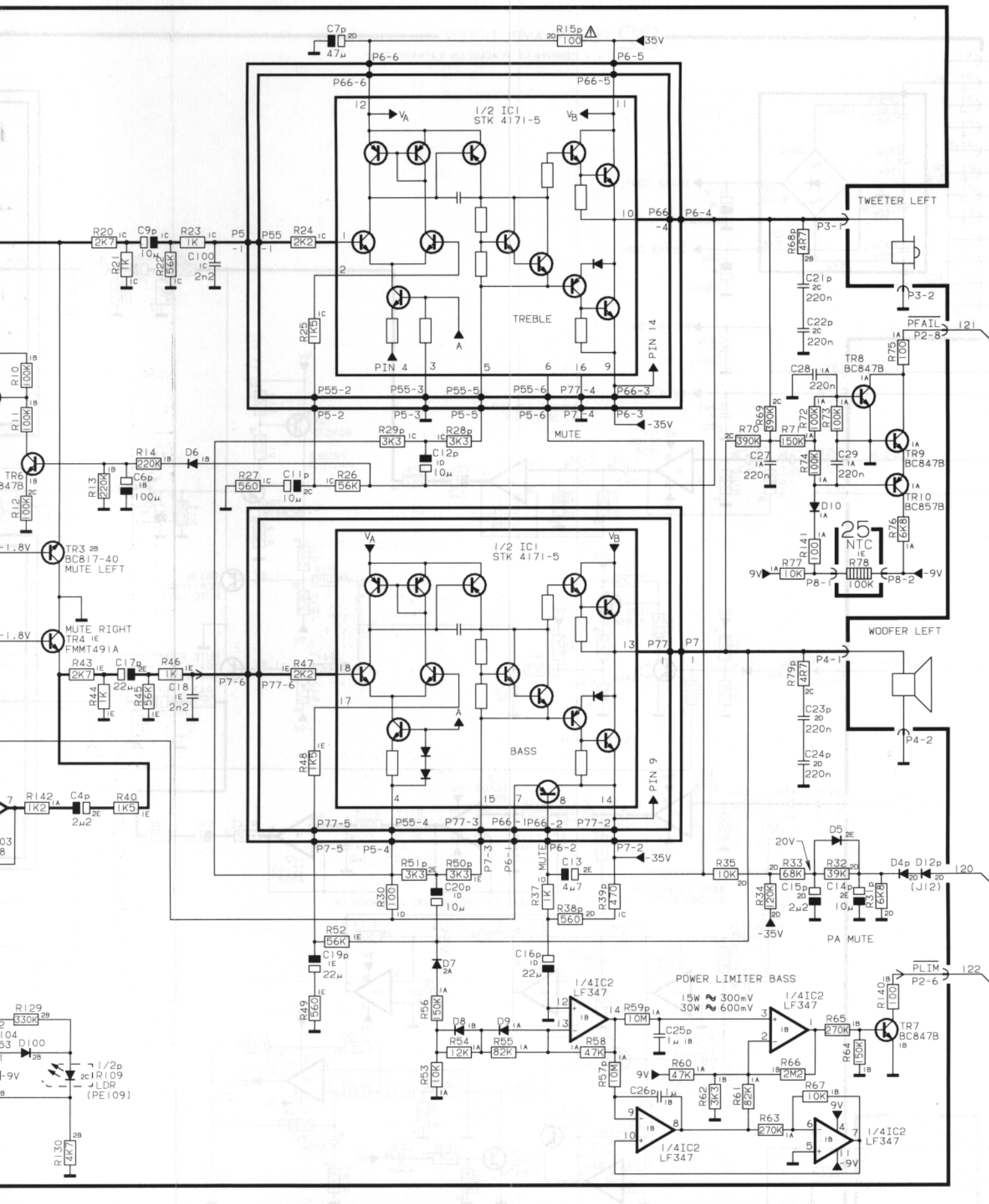
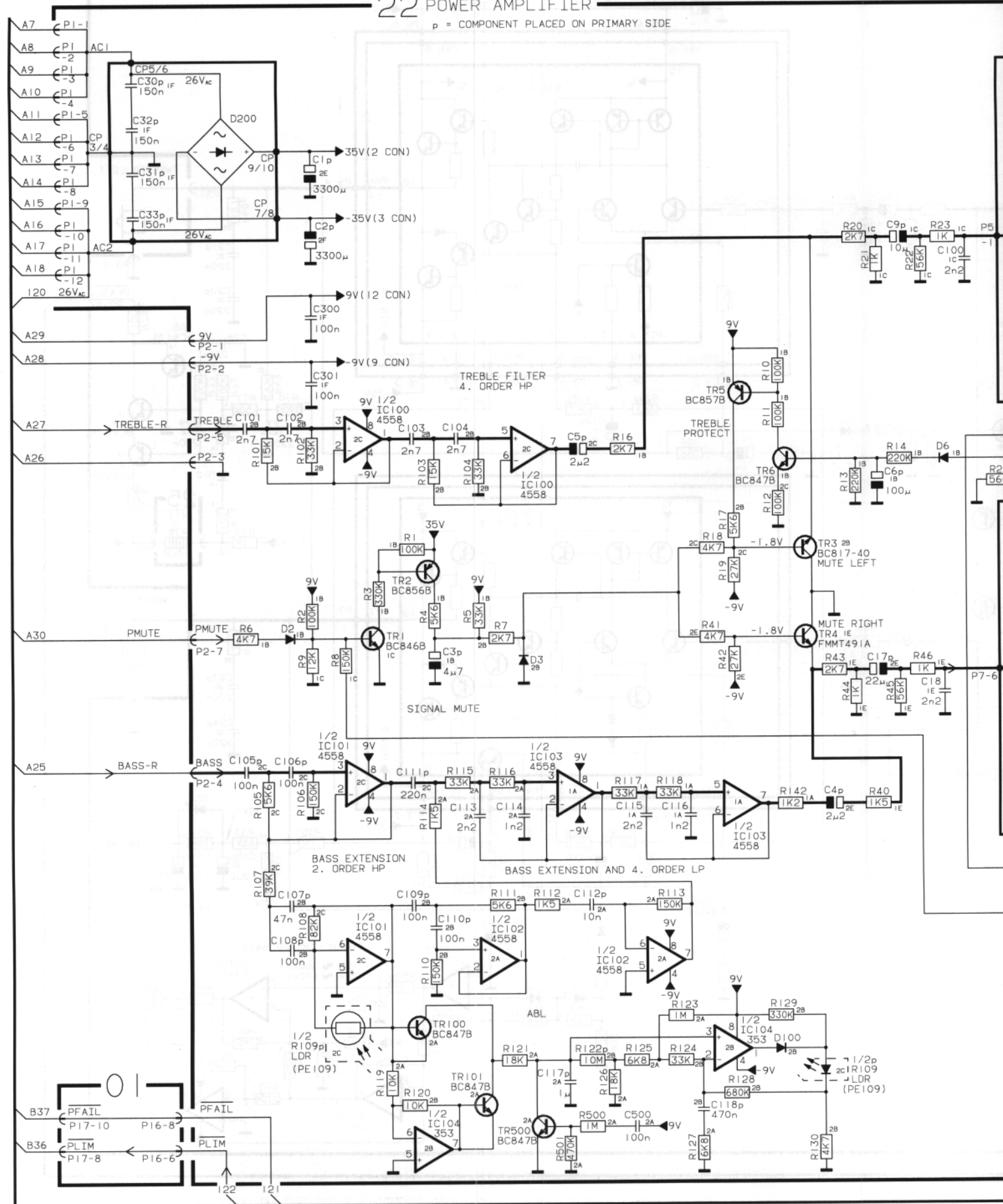
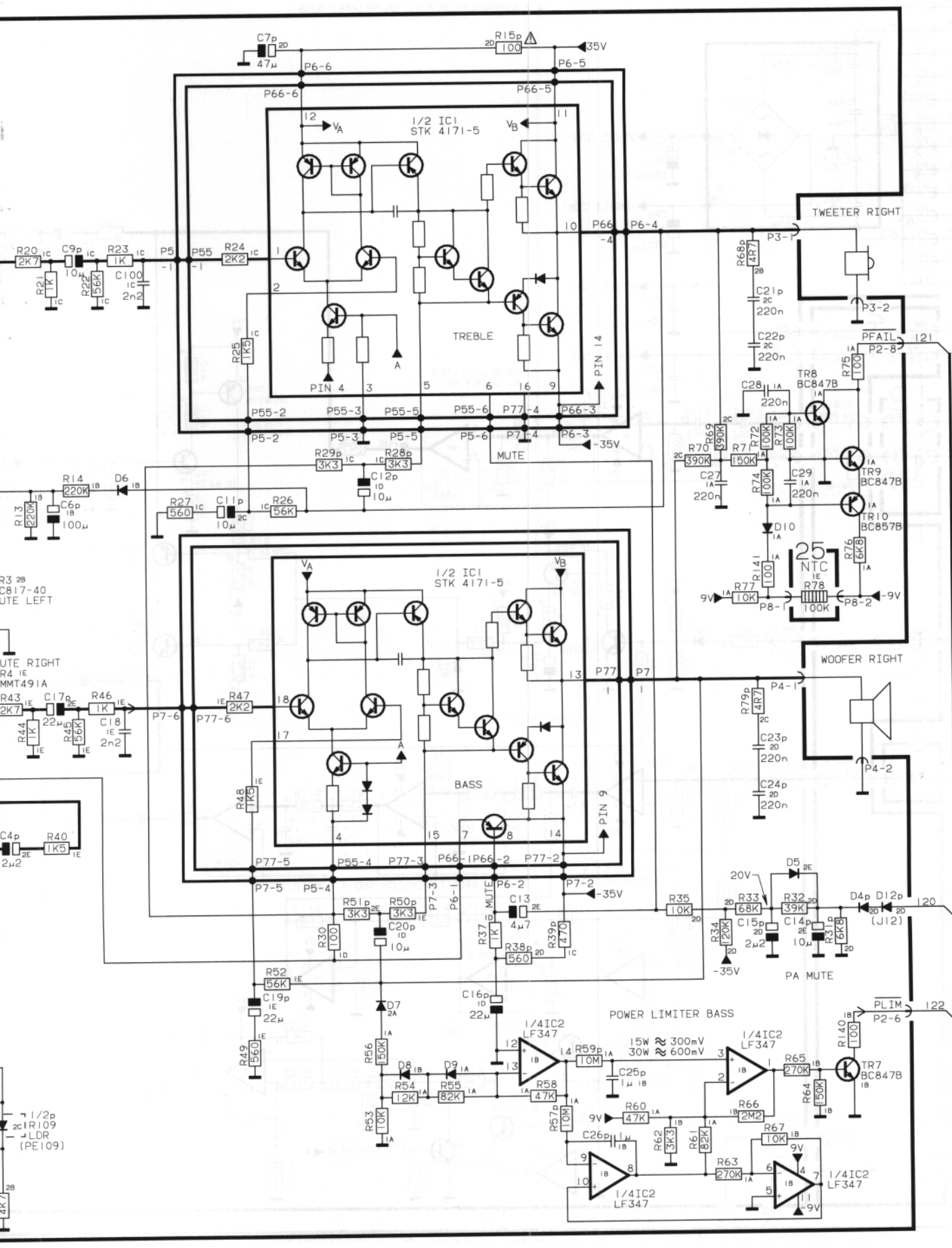


DIAGRAM E POWER AMPLIFIER RIGHT

22 POWER AMPLIFIER

p = COMPONENT PLACED ON PRIMARY SIDE





LIST OF ELECTRICAL PARTS

| 18 | 51 | 57 | 150 | 151 | 209 | 250 | 261 |
|----|----|----|-----|-----|-----|-----|-----|
| | | | | | | | |

Resistors not referred to are standard, see page 3-5

Δ Indicates that static electricity may destroy the component.

* Specially adapted sample.

PCB 01, 8006068,
LF Supply and Control

| | | | | | | | |
|------|---------|---------------|-------------|------|---------|----------------|-------------|
| IC1 | 8342238 | 151 | TDA7318D | IC4- | 8341022 | 150 | 4558 |
| IC2 | 8341022 | 150 | 4558 | IC8 | | | |
| TR1- | 8320758 | 057 | PMBF4392 | | | | |
| TR2 | | | | | | | |
| D1 | 8300466 | 261 | W02G | | | | |
| R2 | 5012218 | 11.8kΩ | 1% 1/10W | R15- | 5012216 | 5.9kΩ | 1% 1/10W |
| R4 | 5012218 | 11.8kΩ | 1% 1/10W | R17 | | | |
| R7- | 5012218 | 11.8kΩ | 1% 1/10W | R30- | 5012217 | 150kΩ | 1% 1/10W |
| R8 | | | | R31 | | | |
| R9 | 5012216 | 5.9kΩ | 1% 1/10W | R34- | 5012217 | 150kΩ | 1% 1/10W |
| | | | | R35 | | | |
| C1- | 4000404 | 22pF | 5% 50V | C27- | 4130230 | 100nF | 20% 63V |
| C2 | | | | C28 | | | |
| C3- | 4201257 | 1μF | 20% 50V | C29- | 4201256 | 470μF | 20% 25V |
| C4 | | | | C30 | | | |
| C5- | 4000412 | 100pF | 5% 50V | C31 | 4010175 | 33nF | 10% 50V |
| C8 | | | | C32 | 4010220 | 100nF | 10% 50V |
| C9 | 4201257 | 1μF | 20% 50V | C33 | 4010315 | 22nF | 10% 25V |
| C10- | 4000457 | 1.5nF | 10% 50V | C34 | 4000410 | 68pF | 5% 50V |
| C11 | | | | C35 | 4010175 | 33nF | 10% 50V |
| C12 | 4010314 | 220nF | -20+80% 25V | C36 | 4010315 | 22nF | 10% 25V |
| C13 | 4201257 | 1μF | 20% 50V | C37 | 4010220 | 100nF | 10% 50V |
| C14- | 4010316 | 100nF | 10% 25V | C38 | 4000410 | 68pF | 5% 50V |
| C17 | | | | C39- | 4010272 | 22nF | -20+80% 50V |
| C18- | 4201257 | 1μF | 20% 50V | C47 | | | |
| C21 | | | | C49 | 4010272 | 22nF | -20+80% 50V |
| C22 | 4201268 | 22μF | 20% 35V | C51- | 4000408 | 47pF | 5% 50V |
| C25- | 4201257 | 1μF | 20% 50V | C54 | | | |
| C26 | | | | | | | |
| P14 | 7211054 | Socket 6 pole | | P17 | 7211056 | Socket 10 pole | |
| P15 | 7211053 | Socket 4 pole | | P18 | 7211057 | Socket 12 pole | |
| P16 | 7211055 | Socket 8 pole | | | | | |

PCB 02, 8006073,
Switch Mode Power Supply

| | | | | | | | |
|-----|---------|--------|----------|-----|---------|-------|----------|
| IC1 | 8341225 | 151 | LM3578 | | | | |
| TR1 | 8320811 | 051 | BC857B | TR3 | 8320552 | 018 | BC327-25 |
| TR2 | 8320507 | 018 | BC337-25 | | | | |
| D1 | 8300606 | 250 | LL4448 | D3- | 8300885 | 209 | 1N5817 |
| D2 | 8300817 | 209 | 1N5819 | D4 | | | |
| R1 | 5012143 | 40.2kΩ | 1% 1/8W | R4- | 5021485 | 0.39Ω | 5% 1/4W |
| R3 | 5011557 | 10kΩ | 1% 1/8W | R5 | | | |

| | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | | | | |
| 51 | 68 | 108 | 123 | 150 | 151 | 156 | 244 |
| | | | | | | | |
| 245 | 250 | | | | | | |
| | | | | | | | |

Resistors not referred to are standard, see page 3-5

Δ Indicates that static electricity may destroy the component.

* Specially adapted sample.

| | | | | | |
|----|---------|---------------|-----|---------|-------------------|
| C1 | 4000277 | 22pF 5% 50V | C6 | 4010132 | 1nF 10% 50V |
| C2 | 4000351 | 1.5nF 5% 50V | C7 | 4010170 | 2.2nF 10% 50V |
| C3 | 4201279 | 22μF 20% 50V | C8- | 4200760 | 220μF -20+50% 16V |
| C4 | 4200600 | 470μF 20% 16V | C9 | | |
| C5 | 4201276 | 470μF 20% 10V | | | |

| | | | | | |
|----|---------|----------------|----|---------|---------------|
| L1 | 8020914 | Coil 470μH 15% | L2 | 8020772 | Coil 10μH 20% |
|----|---------|----------------|----|---------|---------------|

| | | | | | |
|-----|---------|----------------|-----|---------|---------------|
| P23 | 7211053 | Socket 4 pole | P25 | 7211055 | Socket 8 pole |
| P24 | 7211079 | Socket 14 pole | | | |

PCB 03, 8006069, Microcomputer

PCB 05, 8006104, Display, Keyboard and IR Receiver

| | | | | | | | |
|------|---------|------------|--------|-----|---------|------------|--------|
| IC1- | 8341025 | 156 | 4094 | IC6 | 8341036 | 150 | 4071 |
| IC2 | | | | IC7 | 8341577 | 150 | 74HC10 |
| IC3 | 8341165 | 151 | U2506B | IC8 | 8341231 | 150 | LF347 |
| IC4 | 8341025 | 156 | 4094 | IC9 | 8341812 | 150 | LM393 |

| | | | | | | | |
|------|---------|------------|--------|------|---------|------------|--------|
| TR1- | 8320740 | 051 | BF840 | TR9 | 8320753 | 051 | BC856B |
| TR2 | | | | TR10 | 8320816 | 051 | BC846B |
| TR3- | 8320930 | 051 | BF840 | TR11 | 8320753 | 051 | BC856B |
| TR4 | | | | TR12 | 8320816 | 051 | BC846B |
| TR5 | 8320753 | 051 | BC856B | TR13 | 8320856 | 068 | 2N7002 |
| TR6- | 8320816 | 051 | BC846B | TR14 | 8320899 | 068 | B5584 |
| TR7 | | | | TR15 | 8320936 | 051 | BC847C |
| TR8 | 8320936 | 051 | BC847C | | | | |

| | | | | | | | |
|-----|---------|------------|----------|-----|---------|------------|----------|
| D1- | 8330336 | 244 | SFH235 | D5- | 8300482 | 250 | LL4148 |
| D2 | | | | D8 | | | |
| D3 | 8330001 | 245 | LED, red | D9- | 8300520 | 250 | Z6.8V 5% |
| | | | | D10 | | | |

| | | |
|-----|---------|---------------------------|
| DP1 | 8330296 | LED Display, 8 char., red |
|-----|---------|---------------------------|

| | | | | | |
|-----|---------|-------------------|------|---------|----------------|
| R13 | 5011712 | 1.8MΩ 5% 1/8W | R43 | 5011599 | 49.9kΩ 1% 1/8W |
| R25 | 5210006 | LDR, 3.3kΩ 33% | R44- | 5011557 | 10kΩ 1% 1/8W |
| R27 | 5011267 | 1MΩ 5% 1/8W | R45 | | |
| R34 | 5220017 | NTC 15kΩ 10% 1/2W | R69 | 5011599 | 49.9kΩ 1% 1/8W |

| | | | | | |
|-----|---------|-------------------|------|---------|-------------------|
| C1 | 4010314 | 220nF -20+80% 25V | C8 | 4000344 | 560pF 5% 50V |
| C3- | 4200854 | 220μF 20% 10V | C9- | 4000286 | 470pF 5% 50V |
| C4 | | | C11 | | |
| C5 | 4000277 | 22pF 5% 50V | C12- | 4010274 | 100nF -20+80% 25V |
| C6- | 4000219 | 10pF +/-0.5pF 50V | C13 | | |
| C7 | | | C15 | 4010166 | 100nF -20+80% 50V |

P9 7210896 Socket 20 pole

| | | | | | | | |
|-----|---------|-----|--------|------|---------|-----|--------|
| TR3 | 8320936 | 051 | BC847C | TR5- | 8320936 | 051 | BC847C |
| TR4 | 8320778 | 051 | BC858C | TR6 | | | |
| | | | | TR7 | 8320778 | 051 | BC858C |

| | | | | | |
|----|---------|-------------------|----|---------|--------------|
| C3 | 4010274 | 100nF -20+80% 25V | C5 | 4201268 | 22μF 20% 35V |
| C4 | 4010272 | 22nF -20+80% 50V | | | |

| | | | | | | |
|----------------------------------|-----|---------|--------------|-----|---------|--------------|
| PCB 14, 8006106, Plug PCB | C1- | 4000233 | 220pF 5% 50V | C9- | 4000229 | 150pF 5% 50V |
| | C4 | | | C12 | | |
| | C5- | 4000234 | 47pF 5% 50V | | | |
| | C8 | | | | | |

| | | |
|---------|--------------|-----------|
| 8020755 | Coil 1μH 20% | L3- L4 |
|---------|--------------|-----------|

| | | | | |
|-------------------------------------|-----|---------|------------|-------|
| PCB 19, 8006107, DC/DC Converter | IC1 | 8340244 | 108 | LM317 |
| | IC2 | 8340547 | 123 | LM337 |

| | | | | |
|-----------|---------|---------------|----|------|
| R1- R2 | 5011531 | 5.9k Ω | 1% | 1/8W |
|-----------|---------|---------------|----|------|

| | | | |
|--|-----|-----------------------|--|
| | P13 | 7211054 Socket 6 pole | |
|--|-----|-----------------------|--|

| | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 51 | 138 | 141 | 150 | 209 | 250 | 259 | 261 |
| | | | | | | | |
| 262 | | | | | | | |
| | | | | | | | |

Resistors not referred to are standard, see page 3-5

Δ Indicates that static electricity may destroy the component.

* Specially adapted sample.

PCB 20, Transformer left
8006091, type 1601, 230V
8006092, type 1602, 1605 240V
8006093, type 1603, 120V
8006094, type 1604, 100V

| | | | | | |
|------|---------|---------------------------------|--------|-----|---------------------------------------|
| D1 | 8300058 | 209 | 1N4148 | | |
| D2- | 8300466 | 261 | W02G | | |
| D3 | | | | | |
| C1- | 4130224 | 100nF 10% 63V | | C5 | 4201149 2200μF 20% 25V |
| C4 | | | | | |
| F1 | 6609052 | Fuse, thermal | | F3- | 6600067 Fuse 2.5AT 250V |
| F2 | 6604008 | Fuse 800mAT 250V | | F4 | 6600136 Fuse 3.15AT 250V f. type 1603 |
| | 6600097 | Fuse 800mAT 250V f. type 1603 | | | 7200087 Single contact |
| | 7200087 | Single contact | | F5 | 6609052 Fuse, thermal |
| L1 | 8022295 | Coil 2x0.4mH | | | |
| RL1 | 7600111 | Relay 8A 250V | | | |
| T1 | 8013524 | Trafo st.-by f. type 1601 | | | |
| | 8013525 | Trafo st.-by f. type 1602, 1605 | | | |
| | 8013526 | Trafo st.by f. type 1603 | | | |
| | 8013527 | Trafo st.by f. type 1604 | | | |
| P19- | 7220897 | Plug 2 pole | | P21 | 7211053 Socket 4 pole |
| P20 | | | | P22 | 7211057 Socket 12 pole |

PCB 21, Transformer right
8006061, type 1601 230V
8006062, type 1602, 1605 240V
8006063, type 1603 120V
8006064, type 1604 100V

| | | | | | |
|-----|---------|-------------------------------|--|-----|---------------------------------------|
| F1 | 6609052 | Fuse, thermal | | F4- | 6600067 Fuse 2.5AT 250V |
| F2- | 6600080 | Fuse 400mAT 250V | | F5 | 6600136 Fuse 3.15AT 250V f. type 1603 |
| F3 | 6600138 | Fuse 500mAT 250V f. type 1603 | | | 7200087 Single contact |
| | 7200087 | Single contact | | | |
| P10 | 7220897 | Plug 2 pole | | P12 | 7211053 Socket 4 pole |
| P11 | 7211057 | Socket 12 pole | | | |

PCB 22, 8006087,
Power Amplifier L or R

| | | | | | | | |
|-----|---------|-----|-----------|--------|---------|-----|--------|
| IC1 | 8350085 | 141 | STK4171-V | IC100- | 8341022 | 150 | 4558 |
| IC2 | 8341231 | 150 | LF347 | IC103 | | | |
| | | | | IC104 | 8341033 | 138 | LF353 |
| TR1 | 8320816 | 051 | BC846B | TR5 | 8320811 | 051 | BC857B |
| TR2 | 8320753 | 051 | BC856B | TR6- | 8320755 | 051 | BC847B |
| TR3 | 8320752 | 051 | BC817-40 | TR9 | | | |
| TR4 | 8321080 | 051 | FMMT491A | TR10 | 8320811 | 051 | BC857B |

TR100- 8320755 **051** BC847B
TR101

TR500 8320755 **051** BC847B

D2- 8300482 **250** LL4148
D3
D4 8300023 **209** 1N4002
D5- 8300482 **250** LL4148
D10

D12 8300023 **209** 1N4002
D100 8300482 **250** LL4148
D200 8300497 **262** KBU6D

R109 5210017 **259** LDR/LED

R15 5020159 100Ω 10% 0.3W

C1- 4201290 3300μF 20% 50V
C2
C3 4201172 4.7μF 20% 50V
C4- 4200517 2.2μF 20% 50V
C5
C6 4201289 100μF 20% 16V
C7 4200688 47μF 20% 50V
C9 4200510 10μF 20% 16V
C11 4200510 10μF 20% 16V
C12 4201173 10μF 20% 50V
C13 4201172 4.7μF 20% 50V
C14 4201173 10μF 20% 50V
C15 4201174 2.2μF 20% 50V
C16 4200824 22μF 20% 50V
C17 4200525 22μF 20% 10V
C18 4010170 2.2nF 10% 50V
C19 4200525 22μF 20% 10V
C20 4201173 10μF 20% 50V
C21- 4130233 220nF 20% 63V
C24
C25- 4130070 1μF 10% 50V
C26

C27- 4000287 220nF -20+80% 25V
C29
C30- 4130225 150nF 20% 63V
C33
C100 4010170 2.2nF 10% 50V
C101- 4010195 2.7nF 5% 50V
C104
C105- 4130306 100nF 10% 63V
C106
C107 4130240 47nF 10% 63V
C108- 4130306 100nF 10% 63V
C110
C111 4130308 220nF 10% 63V
C112 4130265 10nF 10% 63V
C113 4000370 2.2nF 5% 50V
C114 4000346 1.2nF 5% 50V
C115 4000370 2.2nF 5% 50V
C116 4000346 1.2nF 5% 50V
C117 4130399 1μF 10% 63V
C118 4130234 470nF 10% 63V
C300- 4010220 100nF 10% 50V
C301
C500 4010220 100nF 10% 50V

P1 7211057 Socket 12 pole
P2 7211055 Socket 8 pole
P3 7220312 Plug 2 pole

P4 7220313 Plug 3 pole
P8 7220709 Plug 2 pole

PCB 25, 8006109, NTC

R78 5220054 100kΩ 5% 0.2W

BC847B

IN4002

L4148

KBU6D

20+80% 25V

0% 63V

0% 50V

% 50V

0% 63V

% 63V

0% 63V

0% 63V

% 63V

% 50V

% 50V

% 50V

% 63V

0% 63V

0% 50V

0% 50V

pole

pole

Standard Resistors:

Resistors 5% 1/2W

| | x1 | x10 | x100 | x1k | x10k | x100k | x1M | x10M |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| 1.0 | | 5011000 | 5011013 | 5011028 | 5011044 | 5010313 | 5011069 | 5011083 |
| 1.2 | 5011406 | 5011001 | 5011014 | 5011030 | 5011045 | 5011058 | 5010421 | |
| 1.5 | 5010727 | 5011002 | 5011015 | 5011031 | 5011046 | 5011059 | 5011071 | |
| 1.8 | 5010857 | 5010787 | 5011016 | 5011033 | 5011047 | | 5011072 | |
| 2.2 | 5011335 | 5010708 | 5010815 | 5011034 | 5011048 | 5011061 | 5011074 | |
| 2.7 | 5011612 | 5010803 | 5011018 | 5011035 | 5011049 | 5011062 | 5011075 | |
| 3.3 | 5010255 | 5011007 | 5011019 | 5011037 | | 5011063 | 5010381 | |
| 3.9 | | 5010782 | 5011021 | 5011070 | 5011051 | | 5010392 | |
| 4.7 | 5010765 | 5011009 | 5011022 | 5011035 | 5011036 | 5011065 | 5011078 | |
| 5.6 | | 5011010 | 5011023 | 5011041 | | 5011066 | 5011079 | |
| 6.8 | 5010874 | 5011011 | 5011024 | 5011042 | 5010810 | 5011067 | 5011080 | |
| 8.2 | | 5011012 | 5011026 | 5011043 | 5011038 | 5011068 | 5011081 | |

Resistors 5% 1/4W

| | x1 | x10 | x100 | x1k | x10k | x100k | x1M | x10M |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| 1.0 | 5010592 | 5010506 | 5010065 | 5010040 | 5010059 | 5010049 | 5010054 | 5010638 |
| 1.2 | | 5010595 | 5010128 | 5010153 | 5010046 | 5010047 | 5010665 | |
| 1.5 | 5011348 | 5010468 | 5010057 | 5010247 | 5010053 | 5010063 | 5010093 | |
| 1.8 | | 5010822 | 5010362 | 5010066 | 5010135 | 5010072 | 5010791 | |
| 2.2 | 5010682 | 5010448 | 5010092 | 5010064 | 5010079 | 5010120 | 5010245 | |
| 2.7 | 5010925 | 5010403 | 5010000 | 5010298 | 5010141 | 5010083 | 5010431 | |
| 3.3 | | 5010253 | 5010044 | 5010076 | 5010075 | 5010117 | 5010848 | |
| 3.9 | 5011377 | 5010622 | 5010070 | 5010069 | 5010060 | 5010073 | 5010714 | |
| 4.7 | 5010888 | 5010411 | 5010058 | 5010048 | 5010045 | 5010077 | 5011513 | |
| 5.6 | 5010706 | 5010151 | 5010067 | 5010041 | 5010061 | 5010071 | 5010658 | |
| 6.8 | 5010904 | 5010039 | 5010144 | 5010052 | 5010062 | 5010074 | | |
| 8.2 | 5010880 | 5010056 | 5010068 | 5010154 | 5010091 | 5010505 | | |

Resistors 5% 1/8W

| | x1 | x10 | x100 | x1k | x10k | x100k | x1M | x10M |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| 1.0 | | 5011464 | 5011357 | 5010816 | 5010935 | 5011440 | 5011459 | 5020875 |
| 1.2 | | 5011351 | 5011084 | 5011442 | 5011338 | 5011341 | 5011175 | |
| 1.5 | | 5011463 | 5011443 | 5011178 | 5011364 | 5011398 | 5011460 | |
| 1.8 | | 5011350 | 5011361 | 5011361 | 5011344 | 5011468 | 5011342 | |
| 2.2 | 5011032 | 5011376 | 5010886 | 5011353 | 5011366 | 5011369 | 5011478 | |
| 2.7 | | 5011471 | 5011355 | 5011362 | 5011366 | 5011370 | 5011478 | |
| 3.3 | | 5011347 | 5011337 | 5010827 | 5011346 | 5011371 | 5011462 | |
| 3.9 | | 5011438 | 5011817 | 5011157 | 5011457 | 5011372 | 5020876 | |
| 4.7 | 5011363 | 5011038 | 5011441 | 5011363 | 5010937 | 5011343 | 5011611 | |
| 5.6 | | 5011412 | 5011358 | 5010885 | 5011166 | 5011340 | | |
| 6.8 | | 5011356 | 5011336 | 5010839 | 5011367 | 5011458 | | |
| 8.2 | | 5011466 | 5011354 | 5011339 | 5011368 | 5011373 | | |

Resistors SMD 2% 1/8W
SMD 5% 1/8W

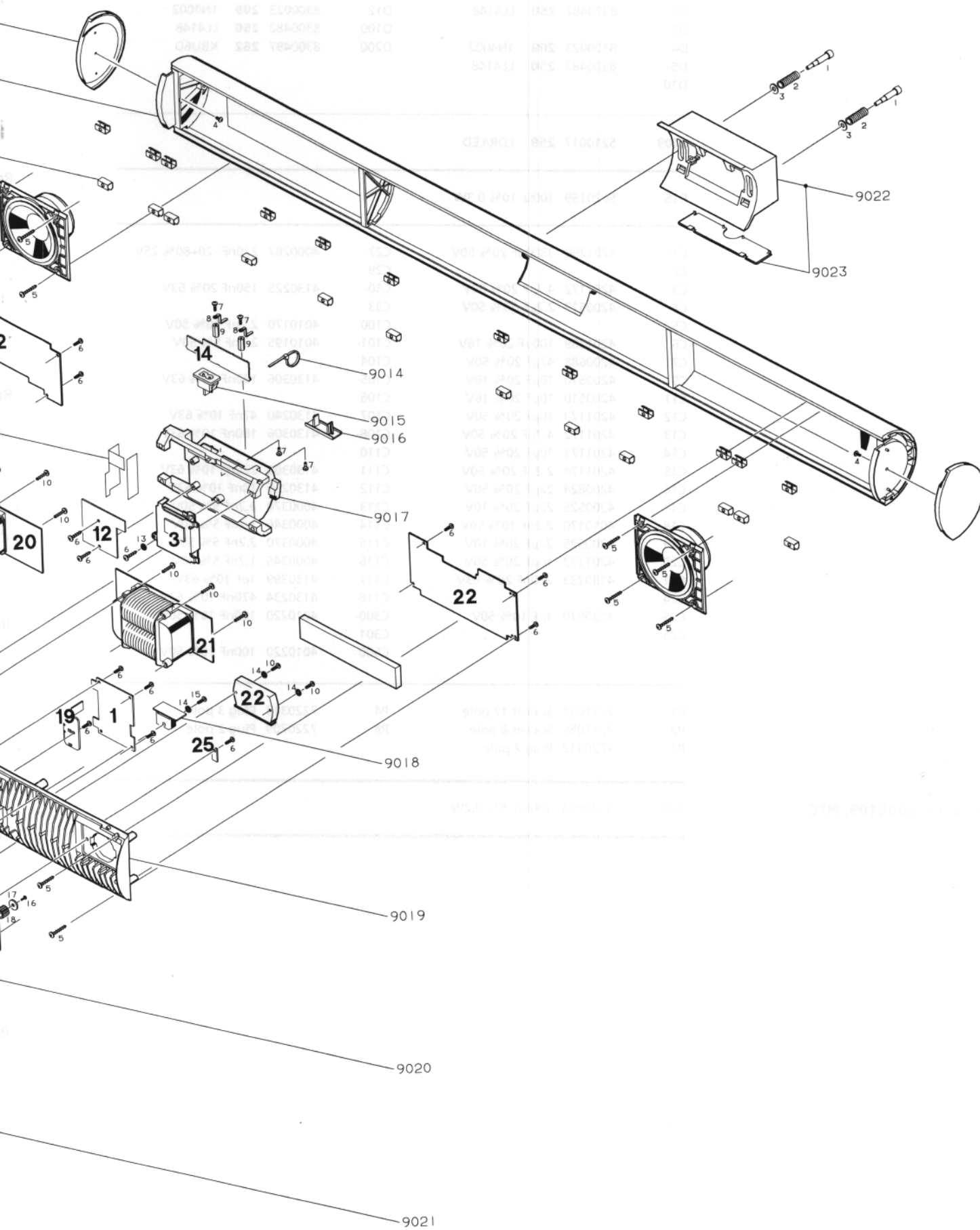
| | 5% | 2% | 2% | 2% | 2% | 2% | 5% | 2% |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| | x1 | x10 | x100 | x1k | x10k | x100k | x1M | x10M |
| 1.0 | 5011623 | 5011647 | 5011218 | 5011227 | 5011241 | 5011256 | 5011267 | 5011730 |
| 1.1 | 5011624 | 5011648 | 5011669 | 5011681 | 5011689 | 5011694 | 5011707 | |
| 1.2 | 5011625 | 5011649 | 5011219 | 5011682 | 5011490 | 5011257 | 5011708 | |
| 1.3 | 5011626 | 5011650 | 5011670 | 5011683 | 5011242 | 5011258 | 5011709 | |
| 1.5 | 5011627 | 5011651 | 5011220 | 5011228 | 5011243 | 5011259 | 5011710 | |
| 1.6 | 5011628 | 5011652 | 5011671 | 5011684 | 5011690 | 5011695 | 5011711 | |
| 1.8 | 5011629 | 5011653 | 5011672 | 5011229 | 5011244 | 5011260 | 5011712 | |
| 2.0 | 5011630 | 5011654 | 5011673 | 5011685 | 5011691 | 5011696 | 5011713 | |
| 2.2 | 5011216 | 5011655 | 5011674 | 5011230 | 5011245 | 5011261 | 5011714 | |
| 2.4 | 5011634 | 5011656 | 5011675 | 5011686 | 5011246 | 5011697 | 5011715 | |
| 2.7 | 5011635 | 5011657 | 5011497 | 5011231 | 5011247 | 5011262 | 5011716 | |
| 3.0 | 5011731 | 5011658 | 5011499 | 5011500 | 5011692 | 5011698 | 5011717 | |
| 3.3 | 5011217 | 5011659 | 5011676 | 5011232 | 5011248 | 5011263 | 5011718 | |
| 3.6 | 5011636 | 5011660 | 5011677 | 5011687 | 5011249 | 5011264 | 5011719 | |
| 3.9 | 5011637 | 5011661 | 5011221 | 5011233 | 5011491 | 5011699 | 5011720 | |
| 4.3 | 5011638 | 5011662 | 5011498 | 5011688 | 5011492 | 5011700 | 5011721 | |
| 4.7 | 5011639 | 5011669 | 5011222 | 5011234 | 5011250 | 5011265 | 5011722 | |
| 5.1 | 5011640 | 5011663 | 5011678 | 5011235 | 5011493 | 5011701 | 5011723 | |
| 5.6 | 5011641 | 5011664 | 5011223 | 5011236 | 5011251 | 5011702 | 5011724 | |
| 6.2 | 5011642 | 5011665 | 5011224 | 5011237 | 5011693 | 5011703 | 5011725 | |
| 6.8 | 5011643 | 5011666 | 5011225 | 5011238 | 5011252 | 5011704 | 5011726 | |
| 7.5 | 5011644 | 5011667 | 5011679 | 5011239 | 5011253 | 5011705 | 5011727 | |
| 8.2 | 5011645 | 5011270 | 5011226 | 5011240 | 5011254 | 5011266 | 5011728 | |
| 9.1 | 5011646 | 5011668 | 5011680 | 5011489 | 5011255 | 5011706 | 5011729 | |

Resistors SMD 5% 1/10W

| | x1 | x10 | x100 | x1k | x10k | x100k | x1M | x10M |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.0 | 6000072 | | | | | | | |
| 1.0 | | 5011920 | 5011932 | 5011944 | 5011956 | 5011968 | 5011980 | 5012275 |
| 1.2 | 5012326 | 5011921 | 5011933 | 5011945 | 5011957 | 5011969 | 5012267 | |
| 1.5 | | 5011922 | 5011934 | 5011946 | 5011958 | 5011970 | 5012268 | |
| 1.8 | | 5011923 | 5011935 | 5011947 | 5011959 | 5011971 | 5011989 | |
| 2.2 | | 5011924 | 5011936 | 5011948 | 5011960 | 5011972 | 5012220 | |
| 2.7 | | 5011925 | 5011937 | 5011949 | 5011961 | 5011973 | 5012269 | |
| 3.3 | | 5011926 | 5011938 | 5011950 | 5011962 | 5011974 | 5012261 | |
| 3.9 | | 5011927 | 5011939 | 5011951 | 5011963 | 5011975 | 5012270 | |
| 4.7 | | 5011928 | 5011940 | 5011952 | 5011964 | 5011976 | 5012271 | |
| 5.6 | | 5011929 | 5011941 | 5011953 | 5011965 | 5011977 | 5012272 | |
| 6.8 | | 5011930 | 5011942 | 5011954 | 5011966 | 5011978 | 5012273 | |
| 8.2 | | 5011931 | 5011943 | 5011955 | 5011967 | 5011979 | 5012274 | |

| | | | | | | | | | | | |
|--|--|--|--|---|--|-------------------|-------------------------------|--|----------|--------------------|----------------------------|
| TR100- TR101 | 8320755 | 051 | BC847B | TR500 | 8320755 | 051 | BC847B | | | | |
| D2- D3 D4 D5- D10 | 8300482 | 250 | LL4148 | D12 D100 D200 | 8300023 8300482 8300497 | 209 250 262 | 1N4002 LL4148 KBU6D | | | | |
| R109 | 5210017 | 259 | LDR/LED | | | | | | | | |
| R15 | 5020159 | 100Ω | 10% 0.3W | | | | | | | | |
| C1- C2 C3 C4- C5 C6 C7 C9 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21- C24 C25- C26 | 4201290 4201172 4200517 4201289 4200688 4200510 4200510 4201173 4201172 4201173 4201174 4200824 4200525 4010170 4200525 4201173 4130233 4130070 | 3300μF 20% 50V 4.7μF 20% 50V 2.2μF 20% 50V 100μF 20% 16V 47μF 20% 50V 10μF 20% 16V 10μF 20% 16V 10μF 20% 50V 4.7μF 20% 50V 10μF 20% 50V 2.2μF 20% 50V 22μF 20% 50V 22μF 20% 10V 2.2nF 10% 50V 22μF 20% 10V 10μF 20% 50V 220nF 20% 63V 1μF 10% 50V | C27- C29 C30- C33 C100 C101- C104 C105- C106 C107 C108- C110 C111 C112 C113 C114 C115 C116 C117 C118 C300- C301 C500 | 4000287 4130225 4010170 4010195 4130306 4130240 4130306 4130308 4130265 4000370 4000346 4000370 4000346 4130399 4130234 4010220 4010220 | 220nF -20+80% 25V 150nF 20% 63V 2.2nF 10% 50V 2.7nF 5% 50V 100nF 10% 63V 47nF 10% 63V 100nF 10% 63V 220nF 10% 63V 10nF 10% 63V 2.2nF 5% 50V 1.2nF 5% 50V 2.2nF 5% 50V 1.2nF 5% 50V 1μF 10% 63V 470nF 10% 63V 100nF 10% 50V 100nF 10% 50V | P1 P2 P3 | 7211057 7211055 7220312 | Socket 12 pole Socket 8 pole Plug 2 pole | P4 P8 | 7220313 7220709 | Plug 3 pole Plug 2 pole |
| R78 | 5220054 | 100kΩ | 5% 0.2W | | | | | | | | |

PCB 25, 8006109, NTC



LIST OF MECHANICAL PARTS

01modul 8006068 LF Supply and Control

02modul 8006073 Switch Mode Power Supply

03modul 8006069 Microcomputer

05modul 8006104 Display, Keyboard and IR Receiver

12modul 8006105 Cross Field

14modul 8006106 Plug PCB

19modul 8006107 DC/DC Converter

2622423 Insulating piece

2364066 Rivet

2816195 Spring clips

20modul 8006091 Transformer left, type 1601

8006092 Transformer left, type 1602, 1605

8006093 Transformer left, type 1603

8006094 Transformer left, type 1604

21modul 8006061 Transformer right, type 1601

8006062 Transformer right, type 1602, 1605

8006063 Transformer right, type 1603

8006064 Transformer right, type 1604

22modul 8006087 Power Amplifier

6200044 Band cable

25modul 8006109 NTC PCB

9001 2576302 Distance bolt

9002 3114422 Chassis

9003 8480243 Tweeter

9004 3907064 Rubber

9005 3950053 Rubber belt

9006 3451207 Front piece

9007 3169016 Operating panel

9008 3458854 Cap

9009 3430606 Cabinet

9010 2816214 Clips

9011 8480259 Woofer

9012 3332055 Damper

9013 3170300 Insulating piece

9014 3152214 Wire holder

9015 6276907 Mains socket

9016 3164935 Cover

9017 3114406 Chassis f. sockets

9018 8006108 Rectifier PCB

9019 3114422 Chassis

9020 3451207 Front piece

9021 3451226 Cloth front

9022 3031382 Wall fittings

9023 3164920 Cover f. wall fittings

Survey of screws and washers

1 2046032 Allen screw, 6x32.7

2 2816267 Spring

3 2622487 Washer

4 2013176 Screw, 3x6

5 2015154 Screw, 3.5x25

6 2013188 Screw, 3x8

7 2036082 Screw, 2.5x8

8 7530119 Solder tag

9 2640054 Washer

10 2011056 Screw, 3x16

11 2038111 Screw, 3x8

13 2622041 Washer

14 2624013 Washer

15 2013177 Screw, 3x13

16 2038103 Screw, 3x12

17 2622247 Washer, 3.2x10.2x1mm

18 3358305 Heat sink

19 2015167 Screw, 3.5x14

20 2625039 Lock washer

21 2011055 Screw, 3x10

Accessories

| | |
|---------|--------------------------------|
| 3031235 | Wall bracket |
| 3390481 | Bag with parts f. Wall bracket |
| 3901162 | Wall Plate |
| 3390468 | Bag with parts f. Wall Plate |
| 2560276 | Cable cover, 10 pieces |
| 1160611 | Table stand |
| 3390410 | Bag with parts f. table stand |
| 3947310 | Rubber foot f. table stand |
| 3392426 | Packing set f. table stand |

Parts not shown

| | |
|---------|--|
| 3947547 | Foam, 3x19mm x 10m. |
| 3947350 | Foam, 3x7mm x 10m. |
| 3947548 | Foam, 6x7mm x 10m. |
| 3984215 | Heat sink compound |
| 3040016 | Allen key, 4mm. |
| 6270621 | MCL cable, 10 m |
| 6100273 | Mainscable f. type 1601, 1602 |
| 6100307 | Mainscable f. type 1603 |
| 6100247 | Mainscable f. type 1604 |
| 6100248 | Mainscable f. type 1605 |
| 7505017 | Terminal strip |
| 3152431 | Connection box f. MCL |
| 3540015 | Mounting instruction f. connection box (MCL) |
| 3392368 | Outer carton |
| 3397921 | Foam packing |
| 3946038 | Foam foil |

Survey of wire bundles

| | |
|---------|--------------------------|
| 6276906 | Wire bundle, left: |
| | 2P23 - 20P21 |
| | 2P24 - 12P4 |
| | 2P25 - 22P2 |
| | 20P22 - 22P1 |
| | 22P3 - Tweeter |
| | 22P4 - Woofer |
| 6276908 | Wire bundle, right: |
| | 1GND - Chassis |
| | 1P14 - 19P13 |
| | 1P15 - 21P5 |
| | 1P16 - 22P2 |
| | 1P17 - 12P5 |
| | 1P18 - 12P6 |
| | 22P3 - Tweeter |
| | 22P4 - Woofer |
| 6200239 | Varnished tubing PCB set |
| 6276907 | Mains socket wire bundle |

Owners manual

| | |
|---------|---------|
| 3501530 | Danish |
| 3501531 | Swedish |
| 3501532 | Finnish |
| 3501533 | English |
| 3501534 | German |
| 3501535 | Dutch |
| 3501536 | French |
| 3501537 | Italian |
| 3501538 | Spanish |

Set-up guide

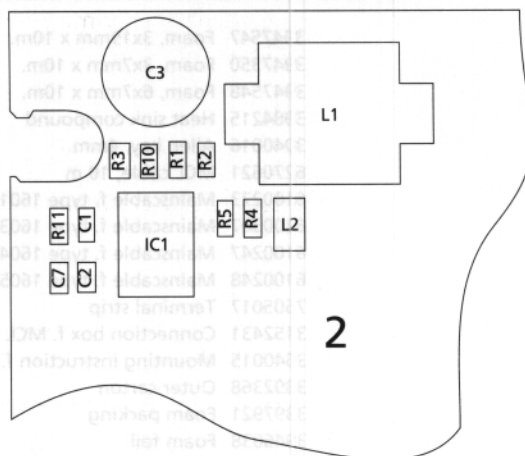
| | |
|---------|---------|
| 3500389 | Danish |
| 3500390 | Swedish |
| 3500391 | Finnish |
| 3500392 | English |
| 3500393 | German |
| 3500394 | Dutch |
| 3500395 | French |
| 3500396 | Italian |
| 3500397 | Spanish |

ADJUSTMENT

5V

When replacing IC1, LM3578, on PCB2, Switch-Mode Power Supply, the supply voltage may have to be adjusted to $5V \pm 0.25V$ by means of R2 and R10:

- If 5V is above level, install R2 (R1//R2).
- If 5V is below level, install R10 (R3//R10).



SPEAKER

Adjustment of bass/treble sound level

To be carried out only when replacing a speaker unit or PCB3, Microcomputer.

TEST MODE 01

TEST MODE 01

This test mode permits manual adjustment of speaker bass and treble levels and can only be executed from stand-by with a Beolink 1000 terminal.

- Press MENU 0 1 PLAY.
The display reads SPK.CAL. to indicate that the product is ready for speaker calibration.
- Press PLAY.
The display shows the present adjustment:
'X X X X' = left bass (LB).
'X X X X' = left treble (LT).
'X X X X' = right treble (RT).
'X X X X' = right bass (RB).

The value that can be changed is flashing. Press >> or << to change unit of adjustment, and change the value by pressing the digit keys. When all four speakers have the desired encoding, press STORE, and abandon test mode by pressing STOP.

Replacement of PCB3,
Microcomputer

The bass and treble levels of the speakers are stored electronically in the Microcomputer (PCB3). When replacing PCB3, the original bass and treble level values must be restored:

- Install the new Microcomputer (see section 6, Dismantling, if necessary).
- In TEST MODE 01, enter the values printed on the label in the socket well:
LT (left treble) : X LB (left bass) : X
RT (right treble) : X RB (right bass) : X
- Press STORE STORE when all four speakers have been encoded as desired.

Replacement of a speaker unit

A rated value in dB is printed on the back of the new speaker unit. This value is used for adjusting the sound level, which is done in TEST MODE 01:

- Note the value on the back of the new speaker unit
- Replace the old speaker unit.
- Execute the point TEST MODE 01.
- The rated value printed on the back of the speaker may be either positive or negative:

Positive:

If the rated value printed on the back of the speaker is positive, the unit in question must be damped by X number of steps. Press >> to select speaker, if necessary (the active speaker is flashing), and enter a new digit (see table).

Negative:

If the rated value printed on the back of the speaker is negative, the other three units must be damped by X number of steps. Press >> to select the three speakers in question, and enter new digits (see table).

| Rated value in dB | X steps down |
|---|--------------|
| 0.00 +/-0.25 +/-0.50 | 0 steps down |
| +/-0.75 +/-1.00 +/-1.25 +/-1.50 +/-1.75 | 1 step down |
| +/-2.00 | 2 steps down |

- Press STORE when all four speakers have the desired encoding.
- Abandon test mode by pressing STOP.

REPAIR TIPS

Beolab LCS 9000 can be brought into TEST MODE from stand-by with a Beolink 1000 terminal, giving access to the following functions:

TEST MODE 00

Display of: Software version number and time of operation in Audio mode, Video mode and stand-by.

- Press MENU 0 0 PLAY.

The display reads: **SW X.Y**, which is the software version number.

- Press ▲.

The display reads: **A: XXXXX**, which is the Audio mode operating time in hours x 10.

- Press ▲.

The display reads: **B: XXXXX**, which is the Video mode operating time in hours x 10.

- Press ▲.

The display reads: **C: XXXXX**, which is the stand-by operating time in hours x 10.

Press ▲ or ▼ to scroll in the scroll menu, and abandon test mode by pressing STOP.

TEST MODE 01

Electronic adjustment of the bass and treble levels of the speakers. See section 5, Adjustment.

SERVICE SET-UP

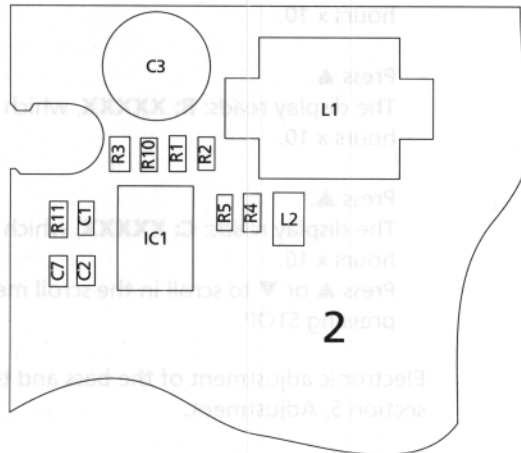
Beolab Local Control System 9000 is connected to a Beomaster (BM5500 or later models) as an ordinary Beolink installation. As regards option programming, see the Brief Operation Guide.

EINSTELLUNGEN

5V

Nach dem Austausch des IC1 LM3578 auf der Platine PCB2 Switch Mode Power Supply kann es erforderlich sein, die Versorgung mit Hilfe der Widerstände R2 und R10 auf 5V \pm 0,25V einzustellen:

- Liegt die 5V-Versorgung über dem Niveau, so ist R2 (R1//R2) zu montieren.
- Liegt die 5V-Versorgung unter dem Niveau, so ist R10 (R3//R10) zu montieren.



LAUTSPRECHER

Einstellung des Tiefen/Höhen-Pegels.

Diese Einstellung ist nur nach Austausch einer Lautsprechereinheit oder der Platine PCB3 Mikrocomputer durchzuführen.

TESTMODE 1

TESTMODE 1

Dieser Testmodus bietet die Möglichkeit, den Tief- und Hochtonpegel der Lautsprecher elektronisch (und manuell) einzustellen; die Einstellung kann nur aus der Stellung 'Stand-by' mit einem Beolink 1000 vorgenommen werden:

- Tastenbetätigung: MENU 0 1 PLAY.
Displayanzeige: SPK.CAL., als Zeichen dafür, daß das Gerät jetzt für die Lautsprecherkalibrierung bereit ist.
- Tastenbetätigung: PLAY.
Im Display erscheint die aktuelle Einstellung:
'X X X X' = Tiefton links (LB).
'X X X X' = Hochton links (LT).
'X X X X' = Hochton rechts (RT).
'X X X X' = Tiefton rechts (RB).

Der Wert, der geändert werden kann, blinkt. Mit >> oder << wird zwischen den Lautsprechereinheiten geschaltet, und der Wert wird durch Zifferneingabe geändert. Wenn alle vier Lautsprechereinheiten die gewünschte Codierung haben, wird STORE gedrückt. Zum Verlassen des Testmodus ist die Taste STOP zu drücken.

Austausch der Platine PCB3 Mikrocomputer

Der Tief- und Hochtonpegel der Lautsprecher wird im Mikrocomputer (PCB3) elektronisch gespeichert. Nach Austausch dieser Platine (PCB3) sind die ursprünglichen Werte für den Tief- und Hochtonpegel wieder zu speichern:

- Den neuen Mikrocomputer einbauen (siehe hierzu evtl. Abschnitt 6 Zerlegung).
- Im TESTMODE 01 werden diejenigen Werte eingegeben, die aus dem Klebezettel (Label) im Anschlußbuchsenbrunnen hervorgehen:
 LT (left treble) : X LB (left bass) : X
 RT (right treble): X RB (right bass) : X
- Wenn alle vier Lautsprechereinheiten die gewünschte Codierung haben, ist die Tasten STORE STORE zu drücken.

Austausch einer Lautsprechereinheit

Die neue Lautsprechereinheit ist rückseitig mit einem aufgedruckten dB-Meßwert versehen. Dieser Wert ist für die Einstellung des Schallpegels zu benutzen. Diese Einstellung erfolgt im Modus 'TESTMODE 01':

- Den rückseitig angeführten Wert der neuen Lautsprechereinheit notieren und die Einheit austauschen.
- Den Punkt 'TESTMODE 01' durchführen.
- Der rückseitig angeführte Wert der Lautsprechereinheit kann entweder positiv oder negativ sein.

Pos.:

Ist der rückseitig aufgedruckte Wert der Lautsprechereinheit positiv, so ist die betreffende Einheit um X Anzahl Schritte zu dämpfen. Ggf. den aktuellen Lautsprecher mit >> wählen (der aktive Lautsprecher blinkt), und den neuen Ziffernwert eingeben (siehe Tabelle).

Neg.:

Ist der rückseitig aufgedruckte Wert der Lautsprechereinheit negativ, so sind die drei übrigen Einheiten um X Anzahl Schritte zu dämpfen. Die drei aktuellen Lautsprecher mit >> wählen, und neue Ziffernwerte eingeben (siehe Tabelle).

| Rated value in dB | X steps down |
|---|--------------|
| 0,00 ±0,25 ±0,50 | 0 steps down |
| ±0,75 ±1,00 ±1,25 ±1,50 ±1,75 | 1 step down |
| ±2,00 | 2 steps down |

- Wenn alle vier Lautsprechereinheiten die gewünschte Codierung haben, ist die Taste STORE zu drücken.
- Zum Verlassen des Testmodus die Taste STOP drücken.

REPARATUR-TIPS

Beolab LCS 9000 läßt sich mit einem Beolink 1000 aus der Stellung 'Stand-by' in den Modus 'TESTMODE' bringen, wodurch die folgenden Funktionen zugänglich werden:

TESTMODE 00

Auslesen von: Nummer der Software-Version sowie Betriebsdauer in 'Audiomode', 'Videomode' und 'Stand-by'.

- Tastenbetätigung: MENU 0 0 PLAY.

Displayanzeige: **SW X.Y**, was der Nummer der Software-Version entspricht.

- Tastenbetätigung: **▲**.

Displayanzeige: **A: XXXXX**, was der Betriebsdauer im Modus 'Audiomode' in Stunden x 10 entspricht.

- Tastenbetätigung: **▲**.

Displayanzeige: **B: XXXXX**, was der Betriebsdauer im Modus 'Videomode' in Stunden x 10 entspricht.

- Tastenbetätigung: **▲**.

Displayanzeige: **C: XXXXX**, was der Betriebsdauer im Modus 'Stand-by' in Stunden x 10 entspricht. Mit der Taste **▲** oder **▼** kann im Rollmenu geschaltet werden. Zum Verlassen des Testmodus die Taste STOP drücken.

TESTMODE 01

Elektronische Einstellung des Tief- und Hochtonpegels der Lautsprecher. Siehe hierzu Abschnitt 5 Einstellungen.

SERVICE SET-UP

Das Beolab Local Control System 9000 wird an einen Beomaster (BM5500 oder später) als eine normale Beolink-Installation angeschlossen. Bezüglich der Options-Programmierung sei auf die 'Brief Operation Guide' verwiesen.

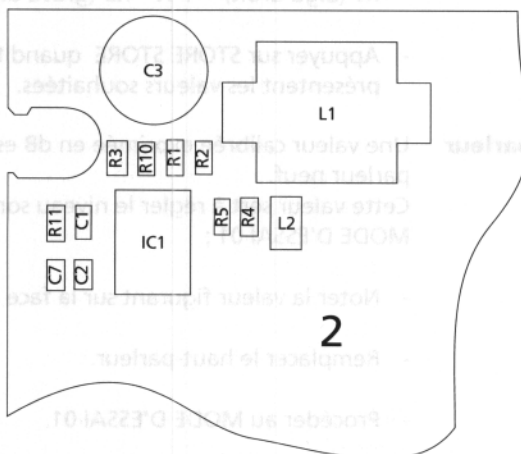
| Rated value in dB | X steps down |
|-------------------|--------------|
| 0 dB | 0 steps down |
| -1 dB | |
| -2 dB | |
| -3 dB | |
| -4 dB | |
| -5 dB | |
| -6 dB | |
| -7 dB | |
| -8 dB | |
| -9 dB | |
| -10 dB | |
| -11 dB | |
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| -93 dB | |
| -94 dB | |
| -95 dB | |
| -96 dB | |
| -97 dB | |
| -98 dB | |
| -99 dB | |
| -100 dB | |

REGLAGE**5 V**

Il peut s'avérer nécessaire de mettre en oeuvre R2 et R10 pour régler l'alimentation sur $5\text{ V} \pm 0,25\text{ V}$ en remplaçant le composant IC1 LM3578 de la carte PCB2 "Switch Mode Power Supply".

- Monter R2 (R1//R2) si l'alimentation est supérieure à 5 V.

- Monter R10 (R3//R10) si l'alimentation est inférieure à 5 V.

**HAUT-PARLEURS**

Réglage du niveau sonore des graves et des aigus

Ne procéder à ce réglage qu'en cas de remplacement d'un haut-parleur ou de la carte PCB3 "Microcomputer".

MODE D'ESSAI 01**MODE D'ESSAI 01**

Ce mode d'essai permet de régler manuellement le niveau des graves et des aigus des HP. Il ne peut s'effectuer qu'en mode veille à l'aide d'un Beolink 1000.

- Appuyer sur MENU 0 1 PLAY.

L'afficheur indique SPK.CAL, matérialisant ainsi que l'appareil est prêt à calibrer le haut-parleur.

- Appuyer sur PLAY.

L'afficheur indique le réglage instantané :

"X X X X" = grave gauche (LB)

"X X X X" = aigu gauche (LT)

"X X X X" = aigu droit (RT)

"X X X X" = grave droit (RB)

La valeur susceptible d'être modifiée clignote. Les touches >> et << permettent de sauter d'un HP à l'autre. Les valeurs se changent en tapant les chiffres correspondants. Après avoir affecté les valeurs souhaitées aux quatre haut-parleurs, appuyer sur STORE. Appuyer sur STOP pour quitter le mode d'essai.

Remplacement de la carte PCB3 "Microcomputer"

Le microcalculateur (carte PCB3) mémorise électroniquement le niveau des graves et des aigus des haut-parleurs. Il convient de remémoriser les valeurs initiales des graves et des aigus si la carte PCB3 est remplacée.

- Monter le microcalculateur neuf (se reporter le cas échéant au paragraphe 6 "désassemblage").
- En MODE D'ESSAI 01, taper les valeurs inscrites sur l'étiquette apposée sur le puits accueillant la fiche :
LT (aigu gauche) : X LB (grave gauche) : X
RT (aigu droit) : X RB (grave droit) : X
- Appuyer sur STORE STORE quand tous les quatre haut-parleurs présentent les valeurs souhaitées.

Remplacement d'un haut-parleur

Une valeur calibrée exprimée en dB est inscrite sur la face arrière du haut-parleur neuf.

Cette valeur sert à régler le niveau sonore. Cette opération s'effectue en MODE D'ESSAI 01 :

- Noter la valeur figurant sur la face arrière du haut-parleur neuf.
- Remplacer le haut-parleur.
- Procéder au MODE D'ESSAI 01.
- La valeur inscrite sur le verso du haut-parleur peut être positive ou négative :

Valeur positive :

Si une valeur positive figure sur la face arrière du haut-parleur, affaiblir le HP correspondant de X pas. Le cas échéant, sélectionner le haut-parleur à l'aide de la touche >> (le haut-parleur actif clignote) et entrer la nouvelle valeur (voir tableau).

Valeur négative :

Si une valeur négative figure sur la face arrière du haut-parleur, affaiblir les trois autres haut-parleurs de X pas. Le cas échéant, sélectionner les trois haut-parleurs à l'aide de la touche >> et entrer les nouvelles valeurs (voir tableau).

| Rated value in dB | X steps down |
|---|--------------|
| 0,00 ±0,25 ±0,50 | 0 steps down |
| ±0,75 ±1,00 ±1,25 ±1,50 ±1,75 | 1 step down |
| ±2,00 | 2 steps down |

- Appuyer sur STORE quand tous les quatre haut-parleurs présentent les valeurs souhaitées.
- Quitter le mode d'essai en appuyant sur STOP.

CONSEILS DE REPARATION

MODE D'ESSAI 00

Un Beolink 1000 permet d'amener un Beolab LCS 9000 en veille en MODE D'ESSAI. Cette opération ouvre la porte aux fonctions suivantes :

Lecture de la version du logiciel et de la durée de fonctionnement en mode audio, vidéo et veille.

- Appuyer sur MENU 0 0 PLAY.
L'afficheur indique : **SW X. Y.** Cette information correspond à la version du logiciel.
- Appuyer sur ▲.
L'afficheur indique : **A: XXXXX.** Pour connaître le temps de fonctionnement en mode audio exprimé en heures, multiplier la valeur affichée par 10.
- Appuyer sur ▲.
L'afficheur indique : **B: XXXXX.** Pour connaître le temps de fonctionnement en mode vidéo exprimé en heures, multiplier la valeur affichée par 10.
- Appuyer sur ▲.
L'afficheur indique : **C: XXXXX.** Pour connaître le temps de fonctionnement en mode veille exprimé en heures, multiplier la valeur affichée par 10.
Les touches ▲ et ▼ permettent de dérouler le menu. Quitter le mode d'essai en appuyant sur STOP.

MODE D'ESSAI 01

Régulation électronique des graves et des aigus des haut-parleurs. Se reporter au paragraphe 5 "Réglage".

CONFIGURATION DE MAINTENANCE

Raccorder le Beolab Local Control System 9000 à un Beomaster (BM5500 ou version plus récente) comme dans le cas d'une installation traditionnelle mettant en oeuvre un Beolink. Pour l'option "Programmation", se reporter au Brief Operation Guide.

DISMANTLING

Front fabric frame

- Push the front fabric frame to the side and lift it off.

When both front fabric frames have been removed, PCB5, Display, Keyboard & IR receiver, PCB3, Microcomputer, and PCB12, Cross field, are accessible:

- Remove the display glass (two screws) and the two plastic covers (four screws). PCB5 can now be tilted out into service position, thereby also providing access to PCB3 and PCB12.

ZERLEGUNG

Frontstoffrahmen

- Den Frontstoffrahmen zur Seite hin verschieben und abheben.

Wenn beide Frontstoffrahmen entfernt worden sind, sind PCB5 Display, Keyboard & IR Receiver, PCB3 Mikrocomputer sowie PCB12 Cross Field zugänglich:

- Das Displayglas (zwei Schrauben) sowie die beiden Kunststoffabdeckungen (vier Schrauben) entfernen. PCB5 kann jetzt in Serviceposition gekippt werden, wodurch dann PCB3 und PCB12 zugänglich werden.

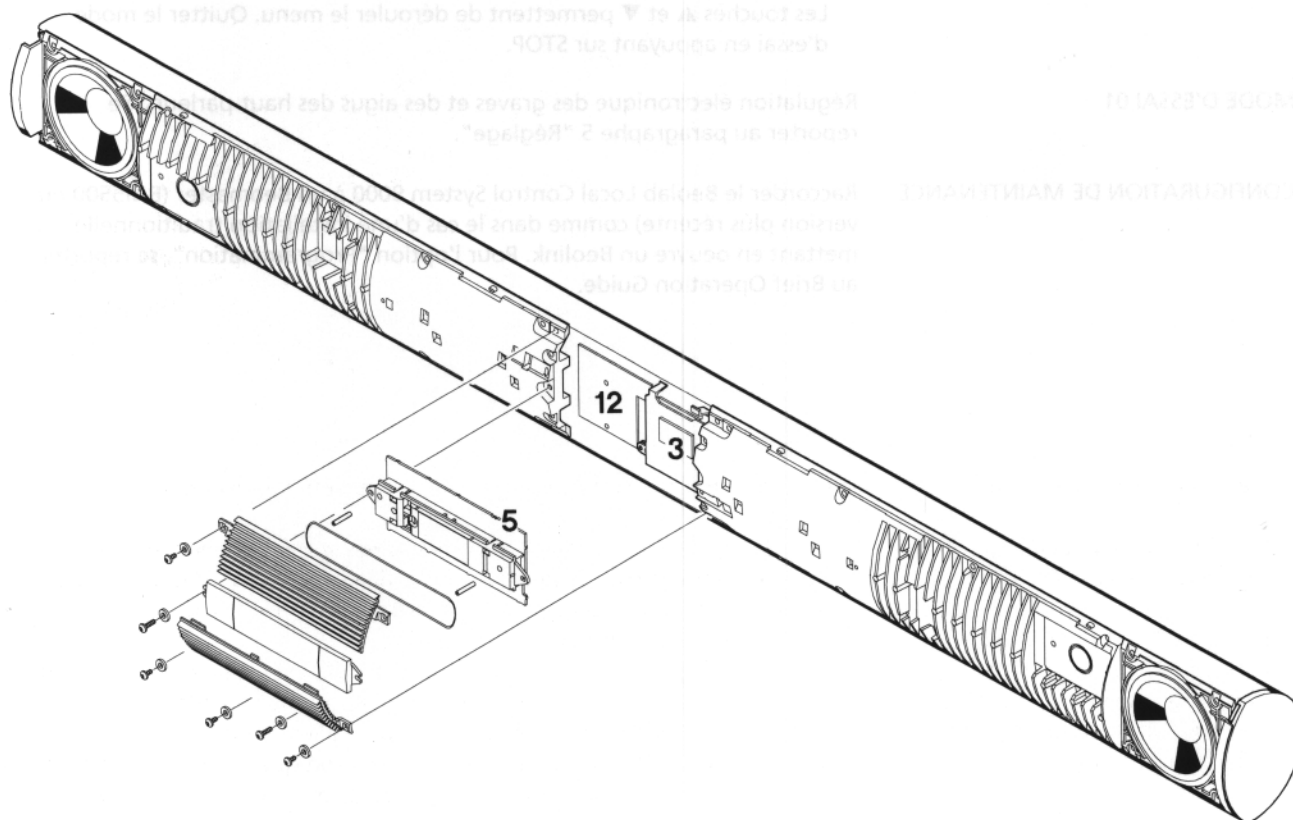
DESASSEMBLAGE

Panneau frontal en textile

- Repousser le panneau frontal sur le côté et le soulever.

Il est possible d'accéder aux cartes PCB5 "Display, Keyboard & IR receiver", PCB3 "Microcomputer" et PCB12 "Cross field" après avoir déposé les deux panneaux frontaux en textile.

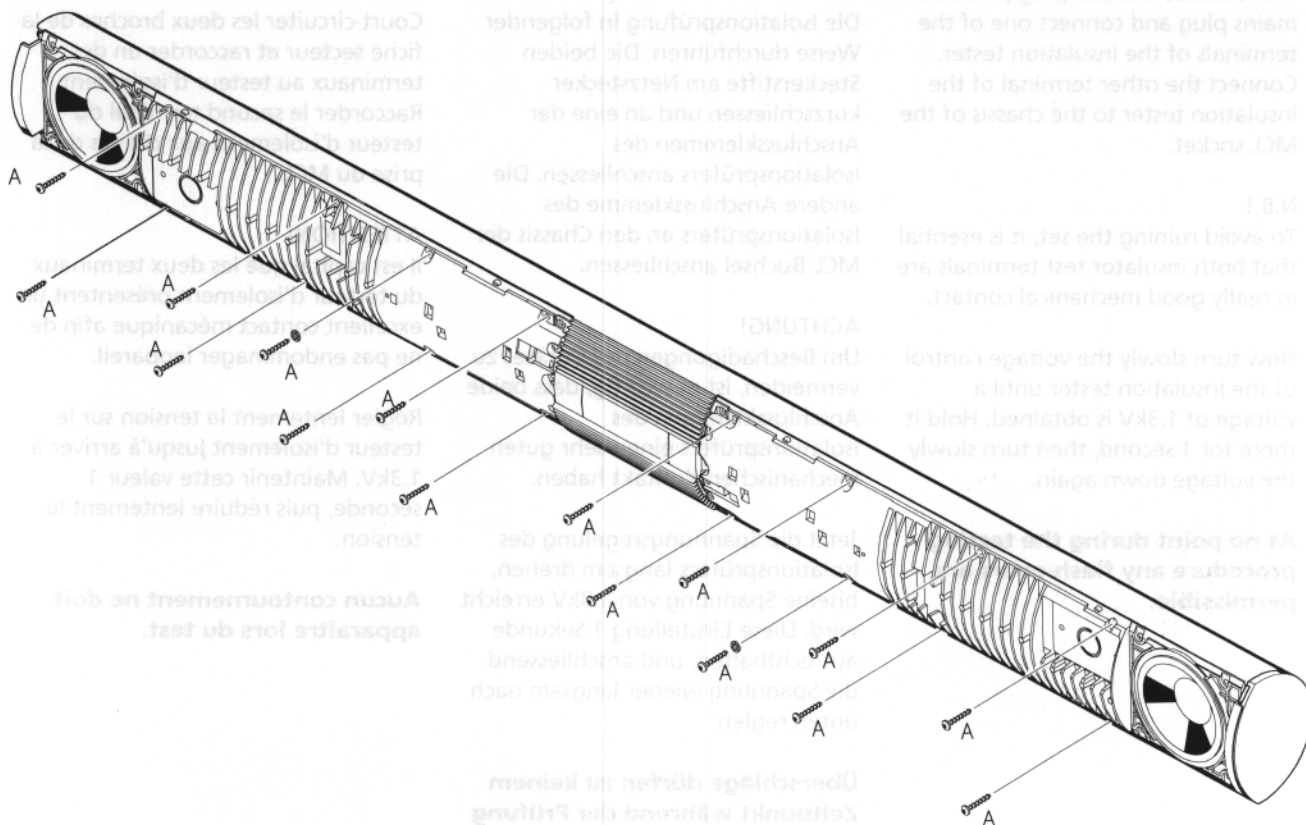
- Enlever la verrerie de l'afficheur (deux vis) et les deux bandeaux plastiques (quatre vis). Il est alors possible de pivoter la carte PCB5 pour l'amener en position de maintenance. Une fois cette opération effectuée, les cartes PCB3 et PCB12 sont également accessibles.



Service position**Important!**

The display glass and cabinet must be protected against scratches by placing them on a soft base.

- Remove the sixteen screws, A, behind the front fabric frames.



- Place the front face down.
- Remove the socket well by first removing the two Allen screws.
- Lift the cabinet up and off carefully. Place the cabinet parallel to the electronics block, and remove the two woofer plugs (22P4) if necessary.

When assembling the product, lower the electronics block carefully down into the cabinet. Place the woofer leads at the centre of the cabinet so that they will not rattle against the cabinet sides.

Serviceposition**Wichtiger Hinweis!**

Das Displayglas und das Gehäuse sind vor Kratzern zu schützen. Hierzu sind diese Teile auf einer weichen Unterlage anzubringen.

- Die sechzehn Schrauben A hinter den Frontstoffrahmen entfernen.

- Das Gerät mit der Front nach unten anbringen.
- Den Anschlußbuchsenbrunnen durch Entfernen der beiden Innensechskantschrauben ausbauen.
- Das Gehäuse vorsichtig anheben und abnehmen. Das Gehäuse parallel zum Elektronikblock anbringen und evtl. die beiden Steckverbindungen (22P4) für die Tieftonlautsprecher abmontieren.
- Beim Zusammenbau des Gerätes den Elektronikblock vorsichtig in das Gehäuse absenken. Die Leitungen für die Tieftonlautsprecher mitten im Gehäuse anordnen, damit sie die Gehäuseseiten nicht 'klirrend' berühren.

Position de maintenance**Attention !**

Il convient de placer la verrerie de l'afficheur et le boîtier sur un support souple pour éviter toute rayure.

- Enlever les seize vis A masquées par les panneaux frontaux en textile.

- Retourner le panneau frontal.
- Déposer le puits accueillant la fiche après avoir dévissé les deux vis à six pans creux.
- Enlever le boîtier en le soulevant avec précaution. Placer le boîtier parallèlement au bloc électronique et débrancher le cas échéant les deux fiches (22P4) reliées aux haut-parleurs de grave.
- En remontant l'appareil, descendre prudemment le bloc électronique dans le boîtier. Placer les câbles des haut-parleurs de grave au milieu du boîtier pour éviter qu'ils ne cognent contre les parois du boîtier.

INSULATION TEST

Each set **must** be insulation tested after dismantling. The test is to be performed when the set has been re-assembled and is ready for delivery to the customer.

Make the insulation test as follows: Short-circuit the two plug pins of the mains plug and connect one of the terminals of the insulation tester. Connect the other terminal of the insulation tester to the chassis of the MCL socket.

N.B.!

To avoid ruining the set, it is essential that both insulator test terminals are in really good mechanical contact.

Now turn slowly the voltage control of the insulation tester until a voltage of 1.3kV is obtained. Hold it there for 1 second, then turn slowly the voltage down again.

At no point during the testing procedure any flash-overs are permissible.

ISOLATIONSPRÜFUNG

Nach einer Zerlegung ist bei jedem Gerät eine Isolationsprüfung vorzunehmen. Die Prüfung wird dann ausgeführt, wenn das Gerät wieder vollständig zusammengebaut und zur Auslieferung an den Kunden bereit ist.

Die Isolationsprüfung in folgender Weise durchführen: Die beiden Steckerstifte am Netzstecker kurzschliessen und an eine der Anschlussklemmen des Isolationsprüfers anschliessen. Die andere Anschlussklemme des Isolationsprüfers an den Chassis der MCL Buchse anschliessen.

ACHTUNG!

Um Beschädigungen des Gerätes zu vermeiden, ist es wichtig, dass beide Anschlussklemmen des Isolationsprüfers einen sehr guten mechanischen Kontakt haben.

Jetzt die Spannungsregelung des Isolationsprüfers langsam drehen, bis eine Spannung von 1.3kV erreicht wird. Diese Einstellung 1 Sekunde aufrechterhalten, und anschliessend die Spannung wieder langsam nach unten regeln.

Überschläge dürfen zu keinem Zeitpunkt während der Prüfung vorkommen.

TEST D'ISOLEMENT

Il convient de tester l'isolement de tous les appareils après les avoir désassemblés. Le test est effectué après réassemblage de l'appareil et avant la livraison imminente au client.

Procéder au test d'isolement comme suit:

Court-circuiter les deux broches de la fiche secteur et raccorder un des terminaux au testeur d'isolement. Raccorder le second terminal du testeur d'isolement aux châssis de la prise du MCL.

ATTENTION!

Il est capital que les deux terminaux du testeur d'isolement présentent un excellent contact mécanique afin de ne pas endommager l'appareil.

Régler lentement la tension sur le testeur d'isolement jusqu'à arriver à 1.3kV. Maintenir cette valeur 1 seconde, puis réduire lentement la tension.

Aucun contournement ne doit apparaître lors du test.